United States Department of the Interior
National Park Service

National Register of Historic Places Multiple Property Documentation Form

This form is used for documenting multiple property groups relating to one or several historic contexts. See instructions in *How to Complete the Multiple Property Documentation Form* (National Register Bulletin 16B). Complete each item by entering the requested information. For additional space, use continuation sheets (Form 10-900-a). Use a typewriter, word processor, or computer to complete all items.

_X_ New Submission ____ Amended Submission

A. Name of Multiple Property Listing

The Historic and Prehistoric Resources of Nine Mile Canyon

B. Associated Historic Contexts

(Name each associated historic context, identifying theme, geographical area, and chronological period for each.)

Prehistoric Rock Art, 6000 to 200 years ago

West Tavaputs Adaptation (Fremont era), 1400 to 700 years ago

Historic Period, 1886 to 1936

C. Form Prepared by

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city or town __Ogden_____state__UT____zip code__84401__

D. Certification

As the designated authority under the National Historic Preservation Act of 1966, as amended, I hereby certify that this documentation form meets the National Register documentation standards and sets forth requirements for the listing of related properties consistent with the National Register criteria. This submission meets the procedural and professional requirements set forth in 36 CFR Part 60 and the Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation. (___ See continuation sheet for additional comments.)

_____ _____
Signature and title of certifying official Date

_____
State or Federal Agency or Tribal government

I hereby certify that this multiple property documentation form has been approved by the National Register as a basis for evaluating related properties for listing in the National Register.

_____ _____
Signature of the Keeper Date of Action

Table of Contents for Written Narrative

Provide the following information on continuation sheets. Cite the letter and the title before each section of the narrative. Assign page numbers according to the instructions for continuation sheets *in How to Complete the Multiple Property Documentation Form* (National Register Bulletin 16B). Fill in page numbers for each section in the space below.

Page Numbers

E. Statement of Historic Contexts
(If more than one historic context is documented, present them in sequential order.)

Please See Continuation Sheets

F. Associated Property Types
(Provide description, significance, and registration requirements.)

Please See Continuation Sheets

G. Geographical Data

Sites, districts, buildings, structures and objects within the boundary area of Nine Mile Canyon or the Minnie Maud Creek watershed may be listed on the National Register or determined eligible for the National Register under this Multiple Property Submission (MPS) Cover documentation. The study area is located in east central Utah, in Carbon, Duchesne, and Uintah Counties, west of the Green River in the West Tavaputs Plateau. See the enclosed map for specific boundaries of the MPS study area.

H. Summary of Identification and Evaluation Methods
(Discuss the methods used in developing the multiple property listing.)

Please See Continuation Sheets

I. Major Bibliographical References
(List major written works and primary location of additional documentation: State Historic Preservation Office, other State agency, Federal agency, local government, university, or other, specifying repository.)

Please See Continuation Sheets

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Nine Mile Canyon

Nine Mile Canyon (NMC) contains more than 800 contributing archaeological sites and thousands more that await documentation. These sites are predominantly rock art sites indicative of styles identified elsewhere in the eastern Great Basin, northwestern Plains and northern Colorado Plateau, and they reflect a human presence in the region over many millennia. These sites provide evidence of prehistoric human lifeways, including socioeconomic behaviors, hunting strategies, hunting technology and ceremonial lifeways (see Section 8). Collectively, rock art sites are part of a prehistoric human landscape that included residential sites (single-family dwellings, multi-family dwellings, small villages), storage sites, burial sites, defensive sites and special-use sites indicative of daily human activities. Other architectural evidence may include communications sites and ceremonial sites. The relationship of architectural sites to the ubiquitous rock art is poorly understood. Some of the rock art panels clearly predate the architectural sites and were likely constructed by transient hunters and gatherers using NMC within the context of annual foraging rounds or as a transportation corridor to adjacent regions.

The majority of identifiable rock art sites, however, are attributed to farmers and foragers referred to as the Fremont culture who thrived on the northern Colorado Plateau from about A.D. 600 to 1300, although a Fremont-like adaptation may have emerged centuries earlier. The vast majority of empirical chronometric data (tree-ring and radiocarbon dates) indicate a rapid and unprecedented growth in population beginning about A.D. 900 and persisting until the late A.D. 1200s, when farming was abandoned. This florescence, called the Tavaputs adaptation, is characterized by elaborate architecture unprecedented among the Fremont, and coexistent defensive responses. It is assumed that most of the rock art visible in the canyon today can be attributed to the Tavaputs adaptation. A new rock art tradition appeared in the centuries after the abandonment of horticulture, one attributed to Numic-speaking hunter-gatherers, whose descendants, the Northern Utes, continue to revere and respect the images on the canyon walls and the ancestors who made them.

Environment

Nine Mile Canyon is a 75-mile long, west-to-east trending drainage, one of only three major permanent water sources debouching into the Green River from the West Tavaputs Plateau, which offers an intermixed assemblage of relatively barren deserts, riparian valleys, pinyon-juniper foothills and alpine forests. Nine Mile Canyon demarcates the northern periphery of the West Tavaputs Plateau, which itself lies within the northernmost extension of the Colorado Plateau physiographic province. The Book Cliffs define the western and southern edges of the plateau, and demarcate the southern edge of the Uinta Basin section of the Colorado Plateau, as traditionally defined. The eastern periphery of the plateau is defined by the Green River, and the northern periphery by the Badlands Cliffs, which border NMC on the north.

The canyon topography consists of friable sandstones, mostly lacustrine deposits attributed to the Tertiary Period of geological history, with a south-to-north tilt characterized by dramatically deep canyons that ultimately drain into the Green River. The canyon is comprised of three geological formations: the Flagstaff Member (about 61 to 58 million years ago), the Colton Formation (about 58 to 56 million years ago) and Green River Formation (about 56 to 48 million years ago). The canyon walls visible are primarily Green River Formation sandstones with strata that are intermittently hard and soft. The softer strata erode quicker, creating overhangs and ledges that are discontinuous and constantly divide and merge. The smooth sandstone surfaces are ideal for painting, pecking, scratching and incising images, and the overhangs provided shelter for a variety of human activities.

In most areas, the canyon walls rise in multiple levels to several thousand feet above the floodplain, creating a grand terraced effect on both sides of the canyon. The canyon is bisected by Nine Mile Creek that, in places, has created a relatively broad floodplain. The canyon's gentle slope has resulted in deep alluvial deposits that are well suited for prehistoric and historic agriculture. There are myriad small terraces, benches and ridges about 5 meters to 50 meters above the NMC floodplain that were the focus of most prehistoric residential activities (Photo 9). The upper slopes of the southern tributaries can be found on the northern periphery of Bruin Point (10,285 feet) north of Sunnyside and the western periphery of Patmos Head (9,851 feet) to the east of East Carbon. Below these high points are expansive plateau areas, most at an elevation of about 9,000 feet. This high-elevation plateau area provides snow pack that feeds NMC to the north.

Prehistoric sites are largely concentrated in the central and lower portions of the canyon between about 4,400 and 7,000 feet elevation, an area offering an optimal combination of sufficient frost-free growing seasons, broad alluvial floodplains suitable to agriculture, proximity to permanent water and access to pinyon-juniper resources (cf. Spangler 1993). Although paleoenvironmental data from this region of Utah are scant, it is generally agreed that climatic conditions have remained fairly constant, and any shifts in effective moisture and temperature have not been great enough to significantly alter biological communities exploited by prehistoric populations.

Nine Mile Canyon is situated on the climatic transition zone between the winter-wet/summer-dry zone to the west and north, and the summer-wet/winter-dry zone to the south and east, and would be affected by even minor shifts in the jet stream. Prevailing winter-storm tracks originate in the northern Pacific Ocean, moving east, but the storms are relatively dry by the time they reach the Tavaputs Plateau. Summer storms are normally associated with maritime tropical air masses that originate in the Gulf of Mexico and flow northward into the Colorado Plateau, resulting in convectional thunderstorm activity as warm air is forced over mountains. These high-intensity storms frequently peak in August and are generally localized. Most precipitation occurs from May through August, except at higher elevations where heavy snow accumulates during winter months. Throughout the region, droughts occur on average once every five years and usually last one or two years (BLM 1980:1-2).

These generalizations are generally consistent with weather data collected from 1967 to 1978 at the Nutter Ranch, located in the center of NMC at an elevation of 5,788 feet. Average weather patterns in this area reveal dry winters

(November to February), with 0.54 to 0.68 inches monthly. Rainfall increases substantially in March (0.83 inches), then holds consistent from April through August with rainfall averaging between 0.93 to 1.27 inches monthly. October is the wettest month with 1.29 inches on average. Annual rainfall averages 10.65 inches, which is below the threshold recognized for viable dry farming. Average daily temperatures range from a low of 21 degrees Fahrenheit in January to a high of 71 degrees Fahrenheit in July (BLM 1980).

Most evidence of prehistoric and historic exploitation in the NMC region was concentrated along canyon environments with perennial streams like Nine Mile Creek (Photo 10), which supports a wide variety of plants and animals. The fauna within the drainage has been categorized as part of the Uinta Basin Province of the Northern Great Plains Faunal Area (Durrant 1952, 1963). Floral resources are predominantly taxa characteristic of the Upper Sonoran Life Zone. Floral species are similar to those of the eastern Great Basin (Goodrich and Neese 1986; Woodbury 1960), but with differences unique to the northern Colorado Plateau. As discussed by Bye (1972), Harrington (1967), Kelly (1964) and others, ethnographically observed populations in the West utilized virtually all flora and fauna to some extent, and most, if not all, resources offer some nutritional, pharmaceutical or functional values. The distribution of biotic resources is well documented in the region, primarily in a series of environmental planning documents, including the Book Cliffs Resource Management Plan (BLM 1984), the Diamond Mountain Resource Area Resource Management Plan (BLM 1992) and the Price Field Office Resource Management Plan.

Although it is a consistent perennial water source, Nine Mile Creek (sometimes referred to as Minnie Maud Creek) is not fed by other tributaries with permanent water, although Dry Canyon and Cottonwood Canyon have consistent water flows in abnormally wet years. Rather, Nine Mile Creek is renewed by periodic springs, runoff from heavy snows in the upper plateau, a high water table and intermittent convectional thunderstorms. Generally, the environment that characterizes the canyon can be described within the context of three zones:

- The middle reaches of NMC are characterized by a “pinyon-juniper” zone (7,000 to 5,000 feet elevation), which features a predominance of pinyon and juniper, often occurring in thick stands. This zone is clearly within the Upper Sonoran vegetation zone. Other common species include sagebrush (large and small), rabbitbrush, snakeweed, cheat grass, prickly pear, small-spine yucca, Gambel oak, serviceberry, chokecherry, Mormon tea, sego lily, sunflower, greasewood and currant berry. This zone, which encompasses the area most intensively occupied by prehistoric farmer-foragers, includes that portion of NMC between Pole Canyon tributary on the west and North Franks Canyon on the east.
- The lower reaches of NMC are characterized by a “desert shrub” zone (5,000 to 4,400 feet elevation). This zone is characterized by sparse pinyon and juniper on the canyon slopes, as well as a predominance of greasewood, saltbush, shadscale, blackbrush, Mormon tea, salt grass, small sagebrush, buffalo berry, rabbitbrush, small-spine yucca and other grass and shrubs adapted to a water-stressed environment. Major prehistoric occupations have been documented in this zone, but they are increasingly sparse as distance increases from pinyon-juniper resources. Due to lack of effective moisture and high concentrations of salts in the soils, vegetation is sparse through much of the lower canyon. Vegetation is further hampered by heavy erosion of fragile shale and sandstone. The high salinity of these soils has favored halophyte species adapted to

shallow soils and cold temperatures. This zone includes that portion of the canyon from North Franks Canyon on the west to the Nine Mile Creek confluence with the Green River at Nutters Hole.

- A riparian zone transects the entire drainage from west to east and is characterized by water-adapted species, usually within a distance of 100 meters of either side of Nine Mile Creek. These species include cottonwood, box elder, squawbush, currant berry, joint grass, willows, cattail, phragmites, wild rose, greasewood and large sagebrush. Also associated with this zone is evidence of historic agriculture, including grasses characteristic of irrigated pasture lands, alfalfa, cheat grass, Russian thistle and tamarisk. The proximity of this riparian zone was a critical factor in settlement patterns throughout the canyon, particularly below 7,000 feet elevation.

The rich ecology of the region provides a premium habitat for game animals, including indigenous and introduced taxa. The broader Tavaputs Plateau ecosystem is home to more than 300 different animal taxa (BLM 1980), most of which were probably exploited by prehistoric human populations for food, feathers, apparel and tool materials. Subsistence activities were probably focused on the procurement of specific, high-return resources, although some faunal resources were likely exploited opportunistically. Based on excavations in NMC, large fauna such as deer, elk, antelope and bison definitely were exploited, as well as bobcat, rabbit, marmot, mink and squirrel (Gillin 1938:29). Most fauna found in the canyon today are assumed to have been present in prehistoric contexts (extirpated species like bighorn sheep and turkeys have been reintroduced in recent times).

The abundant rock art in NMC offers some insight into fauna present in prehistoric times. Elk (Photo 11), bighorn sheep (Photo 12), canines (Photo 13) and bison (Photo 14) are commonly depicted, whereas deer (Photo 15) and bears or bear paws (Photo 16) are present but are not common. Gillin (1938) reported the remains of grouse in NMC, and some rock art images appear to depict water birds (Photo 17) and owls. According to records of the Utah Museum of Natural History in Salt Lake City, Julian Steward recovered dried lizards from a site in NMC. Serpent rock art motifs (Photo 18) are common throughout the Tavaputs Plateau region, although the variety of configurations, including spirals and headdresses on snake-like figures, may imply ideological rather than representational elements.

Historic Contexts
Prehistoric Rock Art

The history of archaeological research generally, and rock art research specifically, has been largely defined by attempts to organize the various data – whether artifact types, rock art styles or architectural similarities – into specific categories with spatial and temporal connotations. The problem as it applies to archaeological research is that the creation of categories (e.g., Classic Vernal Style rock art) and labels (e.g., Fremont Culture) tends to become an end rather than a means of communication. Also problematic is that categories or labels tend to become reified in the literature. The tyranny of categories is accentuated when archaeologists uncritically accept artificial boundaries, perpetuating the validity of various assumptions through sheer repetition.

In fact, equating social groups with one particular artifact or rock art style runs counter to ethnographic evidence, although such implications have rarely deterred archaeologists. In most instances, this exercise in cultural classification has been conducted with little effort toward explaining the human behavior that precipitated the manufacture of archaeological remains in time and space. It is perhaps ironic that those items that "serve as markers of culture or ethnicity among living peoples — language, belief, tradition, social views — are not available archaeologically. The prehistoric cultures we identify are not cultures in any complete sense — they are classificatory shorthand for groups of similar kinds of archaeological remains in spatial and temporal proximity" (Jones 1994:71).

This problem is accentuated with rock art categories inasmuch as two key assumptions must be made: 1) Stylistic similarities across geographic regions actually represent transhumance by individuals with a shared ethos, and 2) The age and cultural affiliation of rock art images can be confidently correlated with adjacent archaeological remains, or with remains dated in contexts far removed. Neither of these assumptions has been demonstrated scientifically. With the exception of certain paint pigments that can be AMS dated, no absolute methods for determining the age of rock art have been developed, rendering most temporal classification schemes utilized in rock art discussions as little more than "educated guesses" based on associated archaeological remains or relative patination of rock surfaces.

There are additional problems and limitations to the stylistic classification of rock art. First, not all rock art in NMC, or elsewhere in the region, has been classified within a defined category. Second, stylistic identification and classification is largely intuitive, and disagreement exists among researchers as to definitions and classifications of the images themselves. One researcher's Fremont image is Archaic to another, and likewise images deemed Fremont by some are considered to be Ute by others. Third, there is a paucity of comprehensive data regarding rock art styles and distribution. In fact, most defined styles used today have been identified only from a small number of existing sites. Fourth, style boundaries certainly fluctuated over time, space, cultural associations and even individual interactions. Fifth, classifying every panel in NMC into one style category or

another is not only impossible, it is meaningless as it does little to explain human behavior associated with those images.

Those limitations not withstanding, much of the rock in NMC has been assigned to one or more organizational schemes. It follows then that it has also been assigned the corresponding cultural affiliation and date of construction. Based on stylistic similarities, there appear to be numerous panels exhibiting stylistic similarities to those found in the Great Basin, northwestern Plains and northern Colorado Plateau. Hence, any discussion of NMC rock art "categories" or "styles" must occur within a pan-regional context. For the purpose of this section, rock art sites are discussed within the context of styles defined in contiguous regions.

Sites with rock art components constitute the vast majority of documented sites in the canyon (583 of 830 sites). Because data was missing from 20 site forms, a determination of rock art types could not be ascertained for those particular sites and they are not included in the following discussion. All other recorded sites with rock art components found within the canyon are indicated in Table 3. Petroglyphs (Photo 28), or images pecked, incised or scratched into a stone face with some type of percussion instrument, are the dominant method of execution. Petroglyphs are found at 514 sites. Pictographs (Photo 29), or images executed with organic and inorganic pigments, are found at 116 sites. Both petroglyphs and pictographs are found at 67 sites.

Eastern Great Basin Styles

Julian Steward (1929:220) described a Great Basin Curvilinear Style of petroglyphs he found throughout the Great Basin, including western Utah. The style consists principally of curvilinear design elements, such as meanders and wavy grid patterns that often fill an entire surface of a boulder. The style also includes circles, chains of circles, spoke wheels, foot and handprints, animal tracks, mountain sheep, simple human stick figures, and abstracts that defy description. These images are believed to be attributed to the Desert Archaic Culture (cf. Jennings 1957), and it is believed to have been executed from Archaic times through the Formative period, along with the addition of small Fremont anthropomorphs. These images extend farther eastward into Utah than Steward realized, and they are likely present in NMC.

Building upon Steward's earlier work in the Great Basin, Robert E. Heizer and Martin A. Baumhoff (1962:197) published the results of a three-year long rock art study in Nevada and eastern California. They identified five main styles: Great Basin Pecked, Great Basin Painted, Great Basin Scratched, Puebloan Painted and Pit and Groove. The Great Basin Pecked style extends eastward far into Utah. This style was further divided into two sub-style categories: the Great Basin Representational and the **Great Basin Abstract Style.** The Great Basin Abstract Style was further subdivided into the Great Basin Curvilinear Abstract and the Great Basin Rectilinear Abstract Styles. The definitive elements of the Great Basin Rectilinear Abstract style are dots, rectangular grids, bird tracks, rakes and crosshatches, while those of the Great Basin Curvilinear Abstract are circles, concentric

circles, chain of circles, sun disks, curvilinear meanders, stars and snakes. They suggested that these two styles date at least from about 1000 B.C. and lasted to about A.D. 1500 (Heizer and Baumhoff 1962:233).

There are inherent problems determining the presence of Archaic Great Basin Abstract style panels in NMC because the defining images – circles, meandering lines, etc. – are found in many of the Fremont panels in the area, and even in some of the Ute panels. It is quite probable that some of the panels are indeed attributable to Great Basin styles, but it remains difficult to verify this without more detailed examination of repatination levels and superposition of Archaic Great Basin figures by more recent Fremont and Ute figures. Furthermore, Sally Cole (1987, 1990) has defined an Archaic Abstract Style in eastern Colorado that is similar to those defined by Steward (1929) and Heizer and Baumhoff (1962) for the Great Basin, suggesting Archaic expressions shared similarities across broad regions that undoubtedly would have included NMC. At least 12 rock art sites have been identified within the NMC with Archaic elements, and it is anticipated that specific examples of Archaic Great Basin and/or Archaic Abstract styles will be identified through more detailed examination of the data.

Northwestern Plains Styles

Gebhard and Chan (1950) described a distinctive type of rock art in the area around Dinwoody Canyon in western Wyoming that became generally known as **Dinwoody Tradition**. The images emphasize extraordinarily abstract and supernatural anthropomorphic forms, commonly in outline form with complex, sometimes elaborate, body decorations consisting of patterns of horizontal and vertical lines and geometric designs. Occasionally, abstract forms exist that generally resemble humans, although some appear to represent birds. The anthropomorphs frequently are associated with wavy lines, groups of circles and dot patterns. Another characteristic feature of the images is that they have short stubby arms and legs, and the heads sit directly on the shoulders of a generally rectangular body with rounded corners. Gebhard later defined three general styles: the Early Hunting Style (Style 1), the Interior Line Style (Style 2) and the Plains or Late Hunting Style (Style 3). Gebhard (1969:16) stated that the Interior Line Style "…is the predominant style at Dinwoody and gives the area its distinctive quality;" it is also found in NMC.

James D. Keyser and Michael A. Klassen (2001:107) have argued that superposition, differential weathering, dated archaeological deposits, portrayal of dateable objects and rock varnish dating all support a beginning date of 1000 B.C. and an ending date of A.D. 1775. Cole (1990) later extended the spatial distribution southward along the Green River beyond NMC. She argued the style dated from before A.D. 1 and lasted through at least A.D. 1000. In Wyoming, Dinwoody Tradition images are considered a part of the Shoshone tribal heritage.

Two Interior Line Style panels at 42Cb1045 in NMC are unmistakable examples of the Dinwoody Tradition (Photo 30), and they may date to Late Archaic or early Formative times. Each of the panels appears on an adjacent horizontal section of a broken cliff face. One large anthropomorph is rectangular with rounded corners and arms extending outward from the sides of the body in an upraised position. Fingers and toes are long and

spindly. On top of the head is a row of vertical lines. There are two small associated anthropomorphs and two mountain sheep. To the left of the anthropomorph is a wavy line that surrounds an abstract image. Keiser and Klassen (2001:107) note that wavy lines frequently are associated with Dinwoody Tradition images, as they are in this NMC panel. The second Dinwoody panel to the left of the first is a tall, narrow image that has feet with long, narrow toes and horizontal lines near the top that seem to illustrate fingers.

These two panels provide relative dating information. Panel 1 contains two well-executed Fremont anthropomorphs that are typical of NMC, and Panel 2 contains mountain sheep and rows of dots that are also indicative of Fremont panels. In Panel 1, one Fremont anthropomorph has arms superimposed over the Dinwoody image. In Panel 2, the mountain sheep and the horizontal rows of dots are superimposed over the Dinwoody image. The superimposition in both instances indicates the Dinwoody images were created earlier. The slight difference in repatination between the Dinwoody and Fremont figures suggests these panels were executed slightly before the Fremont florescence in NMC from A.D. 900 to 1300.

Keyser (1977, 1984, 1987) has also described a Shield-Bearing Warrior Style, which he ascribes to this time period in the northwestern Plains, Uinta Basin and northwestern Colorado. This style is believed by some to be associated with vision quests, puberty rites, warfare and shamanism. Art forms are rigid and feature individualistic images that include shield-bearing warriors, V-necked humans, boat-form animals and vulva forms. These petroglyphs “usually occur as small groups of human and animal figures shown in stiff, symbolic postures and stylized relationships. Yet, these glyphs are well made, with firm, bold incisions, creating carefully designed motifs. The result is an individualistic, highly stylized, static, well-executed art form that apparently functions in a magico-religious context” (1984:28).

This style is considered typical of Protohistoric Shoshone peoples on the Plains, but it is generally not associated with the Ute (Cole 1990:215). Shield-Bearing Warrior motifs are relatively common throughout the Tavaputs Plateau, although only a few are known in NMC (Photo 31). Boat-shaped animal motifs are also present in NMC, but they also are uncommon. Shield figures are relatively common in nearby Range Creek Canyon, and it is a common motif in late Anasazi contexts throughout the Canyonlands region of the Colorado River and as far west as Las Vegas. In fact, the image appears to have broad regional significance to various prehistoric groups over broad temporal ranges.

Northern Colorado Plateau

On the northern Colorado Plateau, rock art studies initially identified styles with cultural affinity to the Anasazi of the Four Corners. For example, in 1931 Reagan described the rock art of the NMC region as Anasazi Basketmaker and Puebloan, citing panels of, "men carrying the image of the horned snake, kachina scenes and women with whorled hair as Hopi virgins wear their hair at the present time" (1933:6). Furthermore, Reagan (1935:707-708) described panels in NMC purportedly depicting Puebloan ceremonial scenes with masked

participants, horned or plumed serpents (1937:8) and domesticated turkeys (1933:6). Morss was the first to recognize the distinctive qualities of Fremont rock art, noting it is "among its most interesting antiquities," and at the same time "… present some of the most difficult problems" (1931:34). Most rock art panels in NMC can be described within the context of styles defined elsewhere on the Colorado Plateau.

In 1963, Christy Turner organized the rock art in the Glen Canyon region into five styles based on several criteria. While some of Turner's categories have to some extent been refined, renamed and reordered by others, it remains the only comprehensive work that takes into account artifact association, image type, pottery-petroglyph parallels, manufacturing techniques, patination, superimposition and geological information. Turner's Glen Canyon Style 4 and Style 5 are applicable to this discussion.

Glen Canyon Style 4 was initially believed by Turner (1963:12) to have been produced from about A.D. 1050 to 1250 by the Kayenta Anasazi during Pueblo II/Pueblo III times. Turner noted the subject matter is so variable, compared to the other four styles described, and the pecking technique so well executed that this style could be easily recognized. Style 4 diagnostic designs include birds, flute players, hunting scenes, anthropomorphs with enlarged appendages and genitals, bird-bodied and open mouthed cloven sheep, concentric circles, watch spring scrolls and triangular-bodied anthropomorphs with headdresses.

Many of the images described within the context of Glen Canyon Style 4, and to some extent Glen Canyon Style 5, have since been redefined as Anasazi Basketmaker, with a suspected temporal range of about A.D. 1 to 750. Basketmaker anthropomorphs characteristically have an elongated triangular body, a long narrow neck, a small head and sometimes an arc over the head. The arms are represented by a single line, and the hands and feet usually have three or four fingers and toes. Basketmaker images were generally created with a uniform and fine pecking technique exemplified in the sharpness of the fine lines. These images must have been created by indirect percussion (a hammer and chisel), because the dint pattern is more precise, uniform and smaller than the Fremont hammerstone method. The uniform depth and evenness of the dinting suggest the images were the work of practiced artisans.

At least one unrecorded NMC site is clearly executed in the Anasazi Basketmaker style described above (Photo 32). It has the triangular body, small head and fine lines, and it exhibits a level of patination that is greater than nearby Fremont panels, suggesting that it predated the Fremont presence here. Furthermore, this panel was created with the same pecking technique described by Turner (1963:50) for Glen Canyon Style 4 in that "…the pecking technique [is] so well executed that this style is easily recognized." Researchers have described Basketmaker elements at several other sites in the canyon. For example, Gillin (1938:22) described the Sheep Canyon pictograph panel (Photo 29) as representing "a Basketmaker type."

Glen Canyon Style 5 was assumed to have been created prior the advent of ceramics. It consists almost exclusively of rectilinear outline forms, occasionally filled with parallel or vertical lines, or with combinations

of the two. There was an emphasis on rectilinear shapes, and many figures were created with deeply incised, broad straight lines. The anthropomorphs of Style 5 sometimes have very large elongated bodies that are occasionally filled with the horizontal and vertical line pattern. Arms and legs are minor features, usually being a single line. Anthropomorphs occasionally are depicted holding hunting shafts, and there is an emphasis on sheep. These sheep also often have exceptionally large rectangular bodies with disproportionately small heads, tails and legs, but with the same interior lines. Turner later acknowledged the similarity of Style 5 to split-twig figurines dated to about 2000 B.C. and the apparent occurrence of Style 5 throughout most of western North America. He extended the beginning of rock art in Glen Canyon to 2,000 to 6,000 B.C., suggesting these images constituted "… the best candidates for the earliest rock art in the New World" (Turner 1963:7).

One panel at 42Dc169 in middle NMC contains the remains of a Glen Canyon Style 5 quadruped (Photo 33). Unfortunately, because of its age, much of the image has been lost to erosion. The body is shown by the vertical and horizontal lines that are the defining characteristic of Glen Canyon Style 5 animals. Also visible are two back legs, slanted at an angle. The front of the animal, including the head, is not present. This panel is particularly significant because it also contains a Fremont anthropomorph and a Ute representation of a dog, each exhibiting different levels of repatination. It is obvious that the Glen Canyon Style 5 quadruped is more repatinated than the Fremont anthropomorph, which is more repatinated that the dog. Hurst and Louthan (1979:11-14) also identified a Glen Canyon Style 5 panel at 42Dc211.

Attempts to define Fremont rock art north of the Colorado has proven problematic throughout time. Polly Schaafsma (1971) addressed that problem in a 1971 monograph where she recognized regional differences in Fremont rock art that corresponded to regional variants suggested by Fremont researchers in the 1960s. Schaafsma's data came largely from photographs taken decades before by others. Information on patination levels, construction techniques, associated dateable artifacts, site context and geology was not available, and even the scale of the figures was unknown (Schaafsma 1980).

Schaafsma's classification scheme was based on "general appearance and on the basis of an intuitive evaluation of the elements present," along with "aesthetic qualities." In addition to these features, she tabulated the frequency of occurrence of various elements. She grouped the photographs according to geographic distributions and found they closely corresponded to Ambler's (1966:273) delineation for the Vernal Fremont and the Northern and Southern San Rafael sections. Schaafsma assigned a new nomenclature, but retained the geographic distinctions. Relevant to this discussion are her Classic Vernal Style and Northern San Rafael Style.

The **Classic Vernal Style**, found throughout the Uinta Basin in northeastern Utah, was considered by Schaafsma to "embrace the most advanced expression of Fremont petroglyphic art." She noted the panels are composed of grand human figures with broad shoulders, trapezoidal bodies and simple large, round, rectangular or bucket heads. Many had outlined bodies, and hands were often missing and the feet exaggerated. The images often exhibit elaborate decorative detail. Heads have facial designs and headdresses, the ears have pendants, and

the figures often have ornate necklaces. Additionally, "Small anthropomorphic figures, quadrupeds, and abstract designs are often found in the panels with the large dominating anthropomorph."

Despite the proximity of NMC to the Uinta Basin, there is a paucity of Classic Vernal Style images. One NMC site contains two eroded anthropomorphs, one of which is clearly Classic Vernal Style (Photo 34). It features a necklace, a small breastplate and a round object held in the hand. This image was likely created first by painting, and then features were added by pecking and abrading away the pigment along with the surface of the rock. This created a highly contrasting and three-dimensional image. On top of the head, there appear to be row of short vertical marks that contain remnants of red pigment. Two other sites (described later) could also be evidence of the Classic Vernal Style.

Schaafsma defined the **Northern San Rafael Style** in the area just south of the Uinta Basin, including the Tavaputs Plateau. Schaafsma (1971:28) observed that sites in this area "exhibit a stylistic phase of Fremont rock art which is internally consistent and distinct" from areas around it. She noted that the area lacks the large well-executed, highly-decorated anthropomorphs. Instead of the "pleasing visual patterns" present in the Classic Vernal Style both large and small panels are "crowded and busy, with a wealth of small solidly pecked figures that are carelessly executed and ill defined" (Schaafsma 1971:29). The Northern San Rafael Style stands in stark contrast to the large, elaborate image of the Classic Vernal Style, and there appears to be no stylistic relationship between the two stylistic expressions.

The vast majority of NMC sites that can be confidently assigned by style are considered to be Northern San Rafael Style (Photo 35). But the Fremont rock art so dominant in NMC is very diverse, and Schaafsma's definition is clearly inadequate. Undoubtedly, NMC was occupied for hundreds of years, during which time various people created numerous images on cliff surfaces for a variety of reasons. Some images were created by visitors from outside the region, whereas some were developed locally. Consequently, a single classification for all Fremont rock art in the region belies the variability and complexity found in the rock art here. A total of 226 sites with rock art have been identified as having Fremont elements, either in the style of rock art or through association with Fremont architecture or material culture remains.

Schaafsma also described what she believed to be an Archaic rock art style in the San Rafael Fremont region in which "life size paintings are dominant, but which are stylistically distinct from the Fremont tradition." She named these paintings the **Barrier Canyon Style,** after the tributary where a large number of the panels are located. "The dominant motif in these paintings is the long, dark form of the human torso…. These highly abstracted and mummy-like anthropomorphs which seem to hover against the cliff walls determine the overall aesthetic impact of the Barrier Canyon Style, not only because of their repeated occurrence in each site, but also because of their great size in comparison with the few other elements occurring with them which are often tiny adjuncts to the major anthropomorph theme" (Schaafsma 1971:69).

Conclusive evidence of Barrier Canyon Style images has not been documented in NMC, although it is expected they will be found. The Tavaputs Plateau lies within the spatial range of Barrier Canyon images, and Range Creek Canyon, which neighbors Nine Mile to the south, has several Barrier Canyon panels. Some NMC sites have been tenuously identified as having Barrier Canyon characteristics. For example, the Sheep Canyon Pictograph (Photo 29) has classic elements of Barrier Canyon Style, as well as Fremont elements. Montgomery and Montgomery (1999) identified Barrier Canyon elements at 42Cb1279, better known as First Canyon Site, and Spangler (1993) identified one panel at 42Dc717 in lower NMC with Barrier Canyon-like elements.

Western Colorado

Indigenous rock art attributed to ancestral Utes has also been the focus of scholarly attention. William G. Buckles defined two styles of rock art in western Colorado, an Early Historic Ute, which dates from the time the Utes acquired the horse, from about A.D. 1640 to 1830, and the Late Historic Ute, from about A.D. 1830 to 1880, when the Utes were removed from the region. Ute rock art contains both pictographs and petroglyphs, with solid pecking predominating, although stipple-pecked, grooved and lightly abraded techniques existed. Most often the pictographs are painted in red pigment, although yellow, orange and black also were also used (Buckles 1971).

Much historic Ute rock art is recognizable because it depicts historic objects (Photo 36), including horses with and without riders, tepees, guns, trains, automobiles and period costumes. What constitutes prehistoric Ute rock is more difficult to ascertain. Cole (1988, 1990), who has described at least four different styles attributed to post-A.D. 1300 occupations, has observed that most historic rock art in eastern Utah and western Colorado is of Ute origin, and that there is some evidence of stylistic and cultural continuity between prehistoric and historic art. However, there is a distinct possibility that Utes prior to A.D. 1600 rarely executed rock art panels. "That is, Colorado Plateau Utes may have begun making rock art in response to prehistoric rock art or as the result of influences from Fremont and/or Plateau-Plains cultures" (Cole 1988:115).

Ute rock art is found at 30 sites in NMC, second only to Fremont figures. The most obvious identifying factor is the depiction of horses, often associated with hunting scenes (Photo 37), an indication of the Ute transition to equestrian lifeways after the introduction of horses to New Mexico in 1597. It is likely that the Utes obtained knowledge of the horse by about 1637 (Forbes 1959:200).

There are distinctive differences in pecking techniques between Ute and Fremont panels. With Ute panels, the body of an animal was created with a solid outline, and then the pecking was widened to create a broader line. The heads were completely pecked, as were the legs. In addition, there was some random pecking on the interior of the body. In one case, the inside of the wide outline was pecked to create a gradient effect from the solid pecking to no pecking (Photo 38). Another distinctive characteristic of these Ute images is that they are stylized, and there is little or no repatination of the cliff surface.

Not all panels of suspected Ute affiliation are easily identifiable by the depiction of horses. The Owl Panel (Photo 39) contains owls, a bear and a bear track, all images similar to Ute panels elsewhere in Utah and Colorado, but without identifying historic features. This panel exhibits images with heavy outlines and interior gradient pecking common elsewhere in NMC at sites depicting horses. An examination of many suspected Ute panels in Nile Mile suggests that horses are not the primary indicator of Ute rock art. Rather, it is the stylized types of mountain sheep, buffalo and elk.

Miscellaneous Styles

Much of the rock art of the region does not conform to established categories. Nevertheless, researchers have observed stylistic patterns that repeat themselves across broad geographic regions. It is debatable whether these patterns warrant the designation of additional styles or categories, or whether the patterns observed are actually subsets of already-defined styles in the same area. For example, **scratched images** are found throughout the western United States, including NMC. These images are created with the edge of a sharp implement, like the edge of a freshly broken flake of chert or chalcedony. Only one pass was used to create each line. The scratched images, therefore, are usually not deep and, as a result, they are often overlooked.

The first published reference to scratched lines forming a style was by Heizer and Baumhoff (1962:208), who noted that elements of what they labeled the "Great Basin Scratched Style" consisted of straight lines, sun figures and crosshatching. These elements were generally superimposed over other petroglyphs, suggesting that they were of recent manufacture. Turner (1971) found scratched images in Glen Canyon and he also attributed these to later occupations. He also found scratched images as stand-alone figures, often consisting of grids and crosshatching. And Christensen (1992) reported on scratched images in Arizona where scratch lines appear to have been done prior to the completion of a figure, either in an effort to roughly lay out the scale of the image or panel, or as "vandalism" to an image.

These images have been observed in several panels in eastern Utah, especially in the Canyonlands area. Scratching exists both as apparent precursors to images and as defacement over pecked or painted images. Scratched figures also exist as individual images, which are generally cross-hatched or parallel-line patterns. Some of these images are quite complex. Some of the figures are small and delicate, where others are nearly a meter in size. An unrecorded and quite elaborate scratched-style panel (Photo 40) was recently observed during a reconnaissance in lower NMC.

Steven J. Manning recently defined a **fugitive pigment** anthropomorphic style that is found throughout eastern Utah, including NMC. These images were created by applying pigments to large vertical stone surfaces, usually cliff faces or rockshelter interiors. Specific features were then added by pecking or abrading away the pigment. Sometimes the pigment was removed from edges of the figure. When the remaining pigment eroded, only the pecked or abraded features remained. The pecked features usually consist of facial features, beltlines, hair

ornamentation, headdresses and necklaces, most of which vary from simple to ornate. One feature almost always present is a single, large-pendant necklace. Even though the pigment is gone, the form of these images is evident (Manning 2003).

These anthropomorphs occur in both the Anasazi and Fremont areas, and they constitute a minor component of Schaafsma's Classic Vernal Style, Northern and Southern San Rafael Styles, and the San Juan Anthropomorphic Style, as well as Cole's Abajo-LaSal Style. A developmental sequence, established through superimposition, variation in repatination levels and increasing size and complexity, was shown to occur consistently over all areas where the images exist. This suggests that the images had shared the meaning, function and nuances of construction over time. The images apparently came into existence at the end of the Archaic period and ceased to be made at the time the Fremont culture ended (Manning 2003).

At least two sites with fugitive pigment anthropomorphs are found in NMC. They are directly opposite one another, which is characteristic of similar images in southeastern Utah. All that remains at these sites are the features that were created by pecking away the pigment after the anthropomorphs were initially painted. At one site, there appears to be two anthropomorphs on the left side of a panel, one above the other (Photo 41). The image at the top consists of a single-pendant necklace, a pecked-out face, a broad line on top of the head, and arms and hands. Beneath this image there appears to be a smaller anthropomorph that overlaps the lower portion of the larger figure. This second figure apparently consists of a crudely pecked-out face with a small necklace below it. Below this necklace there appears to be a "fringed skirt." On the opposite side of the canyon is another fugitive pigment anthropomorph with a similar large pendant necklace. Above the necklace, there appears to be a slightly downward curving mouth and two eyes. The necklace of this figure appears to be superimposed over the face of another figure. Below this are a horizontal line and a "skirt" similar to that on the image across the canyon.

A previously undefined Archaic style is also evident in lower NMC at 42Un1901 (Photo 42). This extremely patinated petroglyph panel features large rectangular bodies pecked in outline and with small, solidly pecked round heads. However, unlike Interior Line Style figures, it had no interior decorations. Associated with the patinated figures were two panels of Fremont trapezoids, which do not exhibit repatination. The repatination on the suspected Archaic panel is virtually complete with the pecked portions now exhibiting the same mineralization as the surrounding surface. Given the relative lack of repatination of the Fremont figures, estimated to be about 1,000 years old, this Archaic panel could be several thousand years old (Spangler 1993).

West Tavaputs Adaptation

As discussed above, the ubiquitous rock art sites in NMC are but one tangible remnant of prehistoric lifeways that also involved permanent and semi-permanent residential sites, temporary encampments, storage facilities, specialized work areas, defensive sites and many other remnants of daily activities. The distribution of these archaeological resources across the Nine Mile landscape offers evidence as to how people adapted to this particularly harsh desert environment. Additional evidence of prehistoric human behavior is found in the rock art images themselves, including hunting scenes, transhumance, conflict, fertility images and family relationships. As with all mammals, human behavior is focused to a greater or lesser degree on survival and perpetuation of the species. Consequently, rock art should also reflect human attitudes that encompass fundamental aspects of human behavior (i.e. food procurement, self defense, fertility) throughout various periods of time.

There is, as yet, no convincing evidence of occupation by Paleoindian hunters (13,000 to 6,000 B.C.), although two mammoth tusks were discovered immediately north of NMC. The tusks, located about 3 meters below the surface, were found in association with charcoal, although the tusks showed no evidence of having been burned. The charcoal was not recovered, and the site was subsequently destroyed (Spangler 2002). There is also very little archaeological evidence that Early Archaic or Middle Archaic hunter-gatherers (6000 B.C. to 500 B.C.) remained in the canyon for any significant length of time. There are no Archaic period radiocarbon dates, only a few rock art sites of suspected Archaic age and only a few sites within the canyon that have yielded atlatl dart points consistent with Archaic types defined elsewhere in the region. Distinctive Paleoindian and Archaic points have been recovered from encampments just north, south and east of the NMC.

The period from about B.C. 500 to 600 A.D., invariably referred to as the Late Archaic, Terminal Archaic or Proto-Formative, was a time of tremendous change among prehistoric groups living throughout the northern Colorado Plateau, including the NMC. As discussed by Spangler (2002), this period of time saw a gradual transition from primarily mobile hunting and gathering to a semi-sedentary adaptation focused on limited cultivation of maize *and* the procurement of wild plants and animals. This radical change in human subsistence, which would have involved significant reductions in group mobility, was evident in the Uinta Basin just north of NMC by about A.D. 200, and was concurrent with the appearance of semi-permanent residential structures constructed to afford economically efficient access to plots of maize. This period also marked the advent of complex storage strategies involving granaries, caches and cists. Some researchers have referred to occupations during this period of time as Basketmaker or Basketmaker-like. There is limited evidence of this period in the NMC, but it is anticipated that such data will be documented by future researchers.

Ceramic technology was introduced into the region about A.D. 600, which demarcates the beginning of the Formative Period (A.D. 600 to 1300). This period of time corresponded with evidence of greater sedentism as groups became more reliant on domesticated foods, and residential structures became increasingly more

substantial through time. Some populations began to aggregate into small villages of five to seven pithouses. Residential sites were largely situated on ridges and stream terraces with easy access to arable lands and water. By A.D. 900, human groups augmented that settlement pattern with a secondary strategy involving retreats to defensive postures on outcrops and pinnacles hundreds of feet above the floodplain and without access to economically efficient water sources. Most radiocarbon dates and tree-ring dates indicate a florescence after A.D. 900. There is, as yet, no evidence that prehistoric farming persisted in the canyon after about A.D. 1300. Most rock art in NMC is believed to be attributable to the Formative period.

Numic-speaking hunter-gatherers, ancestors of modern Ute peoples, are believed to have been present in the region by about A.D. 1500, based on radiocarbon dates from uniquely Numic artifacts. This period was characterized by hunting and gathering with a high degree of residential mobility. When the first Spanish friars passed through the area in 1776, there was no evidence that Utes in this region had acquired horses. But Ute hunter-gatherers had already adapted an equestrian lifeway by the early 1800s when encountered by Euroamerican fur trappers. Much of the rock art attributed to Ute peoples is believed to have been executed after they had acquired horses.

It is emphasized that it is virtually impossible for humans today to understand what was in the mind of prehistoric artists hundreds or thousands of years ago. But across time and space, artistic images have typically expressed the people, animals and events of importance to humans at that time. These images could have been representational or abstract, and would undoubtedly have included themes of birth and death, marriage and fertility, family and foes, food and water, deities and demons, and the passage of time. These artistic themes likely included the spiritual, the profane and the mundane. However, it would be speculative for anyone to assign these meanings to prehistoric rock art found throughout NMC, and no such attempt is offered here. Rather, rock art is discussed within the context of its association with other archaeological features that may be indicative of human adaptations to this particular landscape.

Food Procurement

Wild plant and animal acquisition by mobile groups of hunters and foragers was likely an economic pursuit by all individuals during all periods of time. These activities certainly involved hunting and gathering ranges much greater than the NMC corridor, and it certainly involved the movement of people in response to the availability of wild foods. It is also certain that in a water-stressed environment like the Tavaputs Plateau that a permanent water source like Nine Mile Creek would have nurtured a variety of economic plants and animals, and consequently hunting and gathering activities would have been prevalent along the canyon corridor. There is considerable evidence of hunting depicted in the rock art of NMC, but there are no obvious images of gathering activities.

There are important remnants of hunting and gathering activities in the NMC, although they are subtle, poorly documented and largely obscured by the large and impressive architectural and rock art sites. Food procurement and processing sites, both at sheltered and open sites, are a significant part of human adaptations in the region, but these temporary sites typically reveal very little surface evidence of how people exploited their local environment. Some **lithic scatters** have been documented where waste flakes remain the only evidence of tool maintenance, perhaps by a single hunter during a single episode. And there are **foraging camps** where a full range of domestic activities occurred within the context of a social unit of 10 to 25 people. These sites are evidenced by groundstone and chipped-stone tools, ceramics, basketry, beads, burned bones, charcoal and other remains. Open sites with lithic, organic and/or ceramic evidence, but without architectural features indicative of longer-term occupations, are summarized in Table 4.

The database indicates that at least 55 sites within the NMC meet the criteria as open sites with associated organic materials, potsherds and/or lithic artifacts, but without associated architecture. Hearths or concentrations of burned stone were identified at nine of these sites, and depressions were noted at five others. Ephemeral alignments of stones were observed at four sites, although it is possible these are remnants of eroded structures.

Generally, hearths, middens, depressions and alignments that can be associated with longer-term encampments were noted at 38 percent of the open sites. Chipped-stone or groundstone artifacts were identified at 32 open sites (57 percent), although in most cases these consisted of nondiagnostic lithic debitage. These data suggest tool manufacturing and maintenance were a dominant activity at temporary sites. By comparison, only 14 temporary sites (25 percent) yielded ceramics indicative of larger-group and gender-diverse activities. Some 28 sites (50 percent) contained dateable organic materials (typically charcoal) that could potentially produce materials suitable for radiocarbon analyses.

The association of ephemeral open sites to nearby rock art panels is problematic. Because of the temporary nature of the occupation and the paucity of corroborating data, there is no convincing evidence that the temporary occupations evidenced by scatters of artifacts occurred before or after the rock art image was produced. This concern is particularly valid at sites that appear to have been reoccupied repeatedly over time, or at those rock art sites where there is evidence of multiple styles indicating re-use of the cliff face over a broad temporal range. If it can be assumed that mobile hunting and gathering afforded little surplus time for the production of rock art images, then rock art should be rare at temporary sites, becoming more common with longer-term occupancies. Rock art panels are associated with 26 open sites (46 percent) identified as such in the database. However, it appears that rock art sites are less likely to be associated with open lithic scatters (e.g., ephemeral hunting/tool maintenance sites), where only two of 12 sites also had associated rock art. By comparison, six out of 14 sites that had ceramics also had associated rock art. Ceramics are generally associated with bi-gender activities, and if the association is valid the rock art could have been produced during the course of longer-term encampments by larger groups of individuals.

However, it is emphasized that there are inconsistencies between the material culture record and various rock art styles. This was particularly evident at 42Cb1279, or First Canyon Site (Photo 43). Researchers documented 21 separate rock art panels here that were indicative of different groups from Archaic through historic times. Among the rock art styles were Barrier Canyon, Northern San Rafael Fremont and Early Historic Ute. However, the shallow subsurface deposits adjacent to the panels indicated only a single ancestral Ute occupation dating to the A.D. 1600s (Montgomery and Montgomery 1999). There was no evidence the site had been occupied by earlier groups, despite the earlier rock art styles.

Investigations into First Canyon Site nonetheless constitute the best evidence to date of hunting encampments within NMC. Lithic and faunal evidence suggests that ancestral Ute hunting parties brought carcasses back to the site for preparation and cooking. Groundstone was not observed, and there was minimal evidence of plant processing or procurement. Among the artifacts recovered were Desert side-notched points, lithic tools, worked bone fragments and mammal and bird bones. Charcoal from Test Unit 3 produced a radiocarbon date of 260 ±50 B.P. (A.D. 1648 calibrated), a date considered consistent with the Desert side-notched points (Montgomery and Montgomery 1999:59). One point tested positive for bison and deer blood (Montgomery and Montgomery 1999:68).

More convincing evidence of hunting and foraging activities has been preserved in dry **rockshelters** found throughout NMC (see Table 5), although these commonly have shallow deposits. These shelters have suffered from the cumulative effects of more than a century of illegal looting and uncontrolled excavations, but many still contain evidence of subsistence and residential activities throughout all periods of time. Some also contain burials, figurines, food remains, rock art panels, storage cists and bedrock grinding slicks (Photo 44). And yet others contain architectural features, either granaries or residential structures that are indicative of more sedentary lifeways associated with agricultural production and storage. More importantly, many sites identified as rockshelter sites in the database also contain organic materials that could produce chronometric data. Unfortunately, none of these rockshelter occupations have been systematically investigated using modern archaeological methods and theories, and most data discussed here are derived from surface observations or excavations conducted more than a half century ago.

Rockshelter sites generally exhibit evidence a broader range of activities than is typically found at open sites, although this may be attributable to better preservation. Of the 49 rockshelter sites identified in NMC, 24 contained artifacts indicative of human activities, including lithics (n=10), ceramics (n=7) and organic artifacts (n=20). Shelters also exhibit evidence of constructed features. Of 49 rockshelter sites in the database, 22 had specifically constructed features like single-room structures, walls, rubble mounds or unknown structures, and another eight sites had rock alignments that could be remnants of constructed features. Although the sample size is small, it appears longer-term utilization of rockshelters corresponded with the construction of rock art images, although this may also be a function that shelters provide better protection of the images from natural erosion. Sixteen rockshelter sites (33 percent) had rock art images.

It should be noted that most rockshelters investigated in the early and mid nineteenth century revealed shallow deposits. One exception is 42Cb16, better known as Rasmussen Cave (Photo 45), a site with deep middens, grinding slicks, rock art panels and several **burials.** This site was repeatedly excavated (and looted) in the 1930s, as noted by Beckwith, who described "a tiny mummy which was resting upon a coarsely woven mat of cedar bark" that had been removed by (looters) who also removed a woven bag, two moccasins, a corncob on a broken piece of a metate, two woven baskets, a needle, fragments of cloth and a necklace 11 feet long, consisting of 2,750 cut-to-size, bored, and polished stones of a shiny black, varied with a thin, shell-like white (Beckwith 1931:220-221). Noel Morss, operating under the auspices of the Peabody Museum at Harvard, also conducted excavations at Rasmussen Cave about the same time, recovering a partially mummified body of a child lying on its back, the arms flexed at the sides and the femurs pointed almost straight up, the lower legs missing. There was no evidence of anything accompanying the burial other than rotted fragments of mountain sheep skin adhering to the back of the head (Beckwith 1931:29).

Donald Scott, also with the Peabody Museum, later excavated an adult skeleton with small amounts of soft tissue adhering to it and without cranial deformation. The remains were located in direct association with possible spear blades and an atlatl, complete with its foreshafts and attached flint points. The individual was wearing moccasins of a type different from later Fremont moccasins. Moccasins also had been placed over the head, and buckskin leggings and an extra moccasin tied with a piece of cedar bark were located beneath the head. "It was probably a medicine bundle, since it contained red paint pigment in a small buckskin pouch, a serrated stone artifact, a hafted blade, the wooden portions of four foreshafts and a piece of worked horn" (Gunnerson 1969:101). These excavations produced the best archaeological evidence of a pre-Formative presence in the canyon.

This transition from Archaic hunting and gathering to more sedentary lifeways that focused to a greater or lesser degree on food production corresponded with region-wide technological changes, in particular the replacement of the atlatl as the preferred hunting implement with the bow and arrow. Archaeological evidence from northeastern Utah has demonstrated that bow and arrow technology appeared in the Uinta Basin region by about A.D. 100, perhaps as early as A.D. 1 (McKibbin 1992), but the bow and arrow did not replace the atlatl as the preferred hunting weapon until several centuries later. By about A.D. 400, projectile points found at archaeological sites in northeastern Utah are predominantly corner-notched arrow points referred to as Rose Spring, Eastgate or Rosegate Series. By inference, rock art panels depicting individuals utilizing the bow and arrow date no earlier than A.D. 100.

Rose Spring points are found at some NMC sites, suggesting that bow and arrow technology may have appeared here as early as A.D. 100. However, the predominant point types found on archaeological sites within NMC are Uinta side-notched and Desert side-notched points, which appear abruptly in the region about A.D. 1000 (Leach 1970). Side-notched points continue in archaeological contexts through historic contact, and they are seen by some as evidence of the arrival of Numic-speaking hunters and gatherers (Holmer 1986; Holmer and Weder

1980). The NMC rock art sites with evidence of the bow and arrow do not distinguish corner-notched and side-notched point types. But the predominance of side-notched points at archaeological sites implies that most sites depicting the bow and arrow probably date after A.D. 1000.

Matheny (2005) has argued the predominance of rock art hunting scenes, the location of these scenes near the mouth of strategic canyon tributaries and the types of prey depicted collectively offer evidence of long-distance hunting forays, the transportation of large quantities of procured and processed meat products, and the development of socioeconomic trade routes. He has also suggested the intensive hunting activities depicted in the rock art are incompatible with horticulture, and that farming was an ephemeral activity within NMC practiced only during optimal climatic conditions.

Hunting scenes depicting atlatls indicative of Archaic hunters are present but are not common. By comparison, depictions of the bow and arrow are ubiquitous in NMC (Photo 46). The hunting scenes commonly depict the procurement of bighorn sheep, and to a lesser extent elk, deer, bison and maybe antelope. These hunting scenes reveal clues to prehistoric hunting strategies, including the use of hunting blinds, nets, domesticated dogs and groups of hunters working together. One example of communal hunting is depicted at the Great Hunt Panel (Photo 47), a site that also depicts human familiarity with animal behavior, as well as clues as to the seasonality of certain hunts and the possibility that Cottonwood Canyon was a bighorn sheep migration corridor (Matheny et al. 1997; Matheny et al. 2004; Matheny 2005).

Also intriguing are the depictions of what appears to be dogs chasing game animals towards hunters with bows. Canines have been domesticate animals for groups living in the Colorado Plateau and Great Basin areas for several thousand years (Janetski et al. 1992), but archaeologists have rarely addressed the possibility canines were used in rugged canyon environments specifically as hunting dogs. Ethnographic sources indicate the Northern Paiute, Southern Paiute and Ute used dogs to drive large prey such as deer, mountain sheep and antelope (Kelly 1964, Lupo and Janetski 1994; Stewart 1942). The rock art within NMC shows quadrupeds clearly smaller than the bighorn sheep, with small strait ears, a small curved tail and typically an open mouth (Photo 48). There is limited evidence of canine remains, although some were recovered from nearby Caldwell Village (Haag 1966) and Desolation Canyon (Gaumer 1937). Additionally, some rock art scenes appear to depict hunting strategies involving game drives and nets (Photo 49), a behavior common among ethnographically observed Great Basin peoples (Matheny et al. 2004).

Food Production

The predominance of hunting scenes in the NMC rock art stands in contrast to archaeological evidence that suggests prehistoric occupations were focused to a much greater extent on agriculture, primarily the cultivation of maize and probably beans and squash. Investigations in the Uinta Basin have demonstrated that fully developed maize agriculture appeared there by about A.D. 200, and that it featured distinctive Basketmaker-like

characteristics (Talbot and Richens 1996). There is, as yet, little evidence of early maize agriculture in NMC, and there are few sites that fit traditional Basketmaker definitions. Rather, most evidence suggests maize cultivation here coincided with the Fremont florescence between A.D. 900 and 1300. There is minimal rock art evidence to reflect the importance of domesticated crops to local subsistence. A handful of sites contain candelabra-like figures (Photo 50) that are similar to historic Puebloan images depicting maize plants.

The advent of food production had profound effects on seasonally mobile hunter-gatherers. The cultivation of maize plots mandated at least seasonal sedentism by some individuals, which is concomitant with residential structures situated near those plots. Most residential sites in NMC are **single-family residential sites**, or a single semi-subterranean pithouse defined by a circular alignment of unmodified stone slabs stacked horizontally (Photo 51). This type of site is commonly referred to as a "farmstead" or "rancheria" where a single social unit, probably a nuclear family, resided while tending maize plots. There are certainly inconsistencies in the terminology used to describe single-family residential sites, and consequently these sites are invariably referred to in the site documentations as "pithouses," "single-room structures," "stone circles with depressions," "rubble mounds" and occasionally as "other" or "unknown" structures.

Of the 113 sites listed in the database with suspected residential features, 90 appear to exhibit characteristics of a single-family occupation (80 percent). They are typically located on benches, terraces or ridges up to 25 meters above the floodplain, although a few are located at much higher elevations in arguably defensive postures (e.g. Sky House). Single-family sites are summarized in Table 6. Artifacts are not especially common, and were noted at only 39 sites (43 percent of single-family residential sites). Rich middens suggestive of longer-term or repeated occupations are extremely rare. Grayware ceramics are surprisingly rare, occurring at only 20 single-family sites and rarely in significant numbers. This suggests that pottery vessels were not a significant part of local adaptations, and that families engaged in agricultural activities were highly mobile.

Relatively high mobility is also suggested by the paucity of on-site storage. Only 14 sites (16 percent) had granaries or storage cists in close association with the residential structure. Collectively, this evidence is suggestive of short-term or seasonal occupations focused on the cultivation and maintenance of domesticated crops by a single social unit, either an individual or family. The predominance of off-site storage (discussed later) implies that family units were not always in residence to protect their food resources, and that this mobility resulted in a paucity of residential detritus and the caching of resources in protected locales.

The relationship of rock art to single-family residential sites is poorly documented. Single-family residential sites appear to have been situated to take advantage of elevated topography in close proximity to arable lands. These ridges and terraces provide relatively flat living surfaces, but they are not always contiguous to stone surfaces conducive to rock art panels. Of the 90 single-family sites, only 17 sites (19 percent) have rock art panels in direct association with the residential activities. However, it is likely that rock art panels found near residential sites, but outside the standard 40-meters used by archaeologists to separate sites from one another,

are directly associated with residential occupations. No studies have been initiated to determine if there is a relationship between residential sites and types of rock art.

At least 23 additional sites are **multiple-family residential sites**, or clusters of two to seven semi-subterranean pithouses, single-room structures and multi-room structures constructed on the same ridgeline or bench, all in close proximity to one another (Photo 52). This clustering is suggestive of extended-family occupations directed at cooperative agricultural activities. These sites tend to be more complex, featuring retaining walls (Photo 53), outdoor work areas, rock alignments and other features. There is typically greater residential detritus, including lithic debitage, potsherds and groundstone tools, although the total inventory cannot be considered large. In fact, 87 percent of sites identified as multi-family occupations had residential detritus, compared to 46 percent for single-family sites.

Multi-family sites are typically located on similar ridges and terraces that were also selected for occupation by single-family units (e.g., Franks Place, Valley Village), although larger clusters tend to be located on the tops of mesas and small buttes with difficult access to the living areas (e.g. Sunstone Village, Desolation Village). Collectively, the data from multi-family sites suggests that larger social units were remaining in the canyon to cultivate maize, perhaps in response to population expansion mandating increased food production, or increased risk of predation mandating greater vigilance in the protection of food resources. The clustering cannot be interpreted as a concentration of a large population. As mentioned above, 90 of 113 residential sites are single-family sites, whereas another 10 have two residential structures, which may or may not imply an extended family social unit. Only 10 documented sites clearly have three or more residential structures or multi-room structures suggestive of aggregations of extended family groups or perhaps non kin-related individuals.

The relationship of rock art to multi-family residential sites appears to be tenuous, at best. As with single-family residential sites, multi-family sites appear to have been situated to take advantage of elevated topography in close proximity to arable lands. These ridges and terraces provide relatively flat living surfaces, but they are not always contiguous to stone surfaces conducive to rock art panels. Of the 23 multi-family sites, only 10 sites (43 percent) have rock art panels in direct association with the residential activities. None of the sites with three or more residential structures have associated rock art panels. No studies have been initiated to determine if there is a relationship between residential sites and types of rock art. These sites are summarized in Table 7.

The above discussion is predicated on an untenable assumption that archaeologists have correctly coded the data now found in the IMACS database. However, that assumption is problematic given inconsistencies in how archaeologists have traditionally described architectural sites in NMC. What is coded as a pithouse on one site form is indistinguishable from a single-room structure on another. And what were described as “stone circles” and “rubble mounds” could, in many cases, be construed as pithouses or single-room structures. Further complicating the database is the failure to identify the number of specific structures at some sites, resulting in a value of 1 in cases where the actual number of structures was greater.

The paucity of radiocarbon dates prevents any discussion of whether there are temporal differences between single-family and multiple-family occupations, or whether they were contemporaneous. In both cases, the close proximity of arable lands suggests that site locations were chosen based on economically efficient access to maize plots. These locations typically do not feature smooth cliff faces suitable for rock art, and even when they do, rock art images are rare. In most cases, residential sites with associated rock art feature only a few images, all without significant elaboration or complexity. Typically, the large, complex rock art sites are located a short distance away from the residential sites, often at the mouths of nearby side canyons.

Prehistoric farmers also appear to have made a significant commitment to the storage of food resources, incorporating an elaborate strategy that involved many different types of storage facilities. Storage sites are generally located on narrow cliff ledges that are often inaccessible and protected by overhangs, and they are typically located about 5 meters to 75 meters above the valley floor. However, one of the most compelling characteristics is the ubiquity of granaries and caches. Structures range from small, single-chambered slab-lined caches hidden under ledges to clusters of large, cylinder-shaped masonry and adobe structures high on narrow cliff ledges. Some residential sites feature on-site storage, usually small masonry rooms attached to the exterior of the pithouse, in cists in the pithouse floor and/or in expedient adobe structures along adjacent cliff faces.

At least 98 sites in NMC have storage facilities (storage sites are summarized in Table 8). There is no convincing correlation between storage sites and the co-occurrence of rock art sites where only 27 storage sites (28 percent) also have associated rock art panels, 10 of which also have associated residential structures. Where rock art occurs with isolated or remote storage facilities, the figures are typically small, non-diagnostic wavy lines, zigzags and other geometric shapes. Occasionally, granaries high on cliff faces will feature complex rock art panels directly below at the base of the cliff, although a direct relationship between the two is tenuous. The relationship between storage sites and rock art has not been adequately investigated.

Food caching in **slab-lined cists** is common throughout the Southwest, especially at Basketmaker sites, and may be associated with caching maize in contexts of greater mobility than during Pueblo times. Slab-lined cists co-occur with the utilization of pithouses within a pattern of mobility between a minimum of two residences, and the cists likely reflect reliance on stored foods during the winter (cf. Gilman 1987). These observations are in accord with previous suggestions of relatively high mobility among some Fremont populations (e.g., Simms 1986; Barlow 1997, 2002). Slab-lined cists are common throughout Nine Mile Canyon, ranging from very small facilities (Photo 54) to extremely large (Photo 55). Most are situated on cliff ledges or at the base of a cliff with a protective overhang.

Larger, cylindrical adobe and **masonry granaries** are typically much larger and almost always are located on inaccessible cliff faces (Photo 56). They often have the same size range as storage structures found at some Fremont residential sites. The inaccessibility of these structures suggests a strategy of seasonal sedentism of multiple families living near larger, more productive fields, and large household or community larders on cliff

faces, perhaps to protect food stores from neighbors or immigrants. Almost always, these structures are easily seen from the valley floor, but nearly impossible to access.

At least 20 residential sites have **on-site storage**, often consisting of small rooms of coursed-stone masonry attached to the outer wall of a pithouse (Photo 57). These collapsed structures are generally about 1 to 1.5 meters in diameter, although their original shape often cannot be ascertained (none have been excavated within NMC). On-site storage implies a greater level of sedentism in that pithouse occupants were retaining food resources close by for immediate consumption and probably to facilitate better protection of resources from rodents and human predation.

Whereas on-site storage implies greater sedentism, the presence of hidden **subterranean cists** in remote locales, sometimes hundreds of meters above the floodplain, suggests a strategy of remote caching of critical resources reflecting greater mobility. These cists are often camouflaged and are difficult to see, even when standing directly above or below them. The utilization of caches implies that human groups were hiding critical resources due to an inability to protect them through their direct presence. Subterranean cists in the canyon have yielded cottonwood shovels, digging sticks and food remains.

One unique aspect of NMC rock art could shed some light on storage strategies. Throughout the canyon are images of individuals with large packs on their backs, usually walking in a row. Some are carrying a staff or other object. These are popularly referred to as burden-bearer figures (Photo 58). One possibility is that NMC was occupied seasonally by families or individuals who planted crops in the spring. A small number remained during the summer to maintain and protect the crops, followed by a harvest in the fall by a larger population. The canyon was largely abandoned during the winter months, during which time maize was stored in large inaccessible cliff granaries and hidden in caches for retrieval throughout the winter as needed. The burden-bearer images could be a reflection of the transport of food resources from one location to another. Matheny (2005) suggests the burden-bearers are carrying the “spoils” of bighorn sheep hunts, citing 42Dc1106 with nine burden-bearers walking between two bighorn sheep as corroborative evidence.

Social Structure

As discussed above, single-family and multiple-family residential structures have implications for prehistoric social structure. As more families aggregated, opportunities for economic cooperation and enhanced productivity would have increased. But it also would have increased the potential for conflict as groups with only distant kin relationships, or none at all, were incorporated into the local social fabric. Competition for limited arable land, water and pinyon-juniper would likely have mandated new mechanisms for conflict resolution, resource sharing, ceremonial activities and other aspects of daily life.

During late Fremont times (A.D. 900 to 1300), sites within NMC, and elsewhere on the Tavaputs Plateau, appear to reflect increased social complexity. This is manifest by population aggregations into **small villages** of five or more pithouses clustered on topographic features like mesa tops with a single access point that could be easily defended (Photo 59). These villages often have 20 to 30 architectural features (i.e., pithouses, surface structures, storage, defensive walls). The clustering of families into village settings implies the aggregation of individuals who did not necessarily share kin relationships, but who were brought together for mutual protection and economic cooperation.

In the case of the NMC sites, mutual defense appears to have been a major concern. In addition to village sites in defensive postures, there are smaller sites of one to three **surface structures** constructed on bedrock surfaces, and almost always situated on outcrops, pinnacles and mesa tops with precarious access routes (Photo 60). Many of these sites have a defensive wall across the only point of access (Photo 61). These sites, constructed of the same type of horizontal stone masonry as the residential sites nearer the floodplains, are typically located 50 to 100 meters above the floodplain and without immediate access to water. Artifacts are extremely rare at these sites, suggesting they were not utilized as primary residences, but were instead refuges used during short periods of necessity. The significance of these pinnacle structures to prehistoric populations cannot be understated. In most cases, all construction stones had to be hauled up sheer cliff faces, a tremendous expenditure of energy that stands in contrast to the minimal evidence that these structures were utilized for any significant period of time.

These surface structures occur in association with other structures that may be part of the same defensive strategy, although this remains speculative. Large, elaborate **stone cairns** of considerable antiquity have been constructed on outcrops and cliff edges the length of the canyon, although they are more common in the lower portion and around the confluence of Nine Mile Creek. They are always in a direct line-of-sight with residential structures located some distance below. Cairns range in height of up to 2 meters, and the largest have bases about 2 meters in diameter. Some have been constructed with meticulous care, while others have collapsed into rubble mounds. Most have substantial quantities of biotic growth.

At least 27 sites contain large stone cairns of suspected prehistoric antiquity (see Table 9), either because they are found on sites with other constructed prehistoric features and artifacts, or because they exhibit the same construction techniques and/or significant lichen growth. It should be noted that prehistoric cairns found in isolation have no associated artifacts of any kind. Cairns are also found at six residential sites, four of which have artifacts indicative of Fremont occupations. It is therefore assumed that cairns found without associated artifacts also date to the Fremont occupation of NMC. None of the cairns are associated with rock shelters or rock art sites, and their function remains entirely speculative.

Another type of structure is more problematic. Small, dry-laid **stone circles** ranging from 0.5 to 1 meter in diameter are found in the lower part of the canyon on the edge of cliffs and outcrops (the same topographic settings as the stone cairns). They are always in a line-of-sight with other stone circles, cairns or

residential sites. These circles, casually referred to as "play pens," consist of loosely stacked horizontal stone slabs arranged two to four courses high without any evidence of a superstructure (Photo 62). No artifacts of any kind have been found in direct association with the structures. The structures are of a size consistent with small storage structures, but that is unlikely given their exposure to the elements and isolation on high cliff edges. Another possibility is the stone circles are remnants of an elaborate communications system whereby fire could have been utilized to signal residents the entire length of the canyon upon the arrival of visitors or threats.

The aggregation of families into a larger social unit would have mandated a mechanism for conflict resolution and resource allocation, as well as providing a framework for social, economic and political intercourse. Throughout the Southwest, these activities typically occur within the context of ceremonies, as well as structures utilized in **ceremonial** contexts (e.g., kivas). Site 42Dc5, an unusually large surface structure known as Nordell's Fort, could be evidence of a ceremonial structure (Photo 63), although researchers have been reluctant to assign ceremonial structures to Fremont occupations on the northern Colorado Plateau. The structure was built on an isolated bedrock outcrop 100 meters above the floodplain with a commanding view of the canyon. The double-coursed walls rise to 2 meters in height, preventing any view out of the structure. Access is via a steep slope, but it lacks the defensive posture of other surface sites. The structure is in a remarkable state of preservation with walls that exhibit precise stacking of uniform stones and meticulous chinking with smaller stones to create a smooth interior surface and remarkable preservation (Photo 64).

The increased social stress evident throughout the greater Southwest from about A.D. 900 to 1300 may also be evident in rock art panels found throughout NMC. There are numerous sites where individuals appear to be shooting arrows at other humans, and some contain scenes of individuals apparently engaged in violent conflict. The most famous of these sites is Warrior Ridge (Photo 65), an unrecorded site that depicts scores of individuals with shields, clubs, staffs or other weapons engaged in what is popularly interpreted as battle scenes. It is also possible the scenes represent games, ceremonies or other non-lethal events.

Miscellaneous Sites

Although remnants of pithouses and granaries are large and impressive reminders of prehistoric human adaptations, NMC also contains dozens of smaller, less visually impressive sites, including an abundance of ephemeral rock alignments (Photo 66) and dry-laid stone walls (Photo 67). At many large residential sites, these alignments and walls could be remnants of collapsed structures that, over time, have lost definition through erosion or could be the remains of features from which building stones were removed for use on nearby structures. At many other sites, rock alignments and stone walls appear to occur in isolation, often without associated artifacts or clear indication of the purpose behind the feature. These enigmatic features have not been studied, nor have hypotheses been offered as to the human behavior associated with these features. There appears to be little direct correlation between these sites and rock art panels, with 17 of 54 "miscellaneous" sites

(31 percent) also containing rock art panels. Sites with miscellaneous features of unknown utility (e.g., walls, alignments, depressions) are summarized in Table 10.

Historic Period

Nine Mile Canyon History

The history of Nine Mile Canyon is a confusing blend of legend and fact, which is interspersed with romantic overtones of the mythical Old West. The blending of myth, legend, and fact creates a significant problem to understanding the past and deciphering the physical remains in the canyon. The canyon was the backdrop in some of the most significant events and trends in Western Expansion. Fur trappers visited the canyon, John Wesley Powell camped at the mouth of the canyon on both of his exploration trips down the Green River, and Preston Nutter, termed the last of Utah's great cattle barons, moved his operation to Nine Mile Canyon at the beginning of the 20th century. Members of the Wild Bunch are rumored to have visited the canyon, the Buffalo Soldiers of the 9th Calvary patrolled the Nine Mile Canyon road, and gunfights, robberies and cattle drives reportedly even took place. The canyon was the scene of a land rush when the Ute Reservation was opened to homesteading in 1905. The short-lived use of the canyon road as a primary transportation route for shipments of gilsonite is characteristic of the many Western boom & bust cycles centered around resource extraction. Finally, some prominent early archaeologists explored the canyon, generally leaving only poorly documented results.

In spite of the plethora of activity, the canyon's history is anything but clear and unambiguous. Powell's 1869 and 1871 trips are well documented, and yet it is not entirely clear what his crews accomplished or how far up the canyon they explored. Jerry Spangler (personal communication, 2009) now believes the Nine Mile Canyon explored by the Powell expedition may actually be Rock Creek and was mislabeled by later cartographers, which further complicates the historical picture. Nutter advised Congress and government officials on grazing policy, yet he was a complex man that was not above threatening young Forest Service officials, bullying his own ranch hands, and trespassing cattle on federal land. The difficulty in untangling Nine Mile's history can be illustrated by the variety of stories cited to explain how the Minnie Maud Creek that runs through the canyon received its name. One version is that the creek was named for Powell's nieces Minnie and Maud. Other sources say the creek's name is derived from a Ute word, although there is no clearly derived Ute word similar to Minniemaud (Spangler and Spangler 2005:4). Ashley and other explorers called the canyon Euwinty, which is very similar to the ubiquitous Uinta(h) of northeastern Utah, sometimes coarsely translated as "pine tree."

The romanticized view of the canyon has been expressed by local historian Steve Gerber who, as Spangler and Spangler (2005:69) states, characterized the locals "for the most part, they were non-Mormons who never blended in with the Mormon community or shared the Mormon attitude toward cattle ranching or the open range. It was the last place they could go and get away from people. It was ideal for those who didn't blend in with communities, or just didn't like people." The view of the inhabitants as rugged, independent loners is contradicted by the fact these hearty souls lived along one of the busiest roads in Utah over which tens of thousands of people and millions of pounds of freight, gilsonite, and wool were transported for more than two decades. When the road lost its importance, most of the people also moved away.

Transportation Route

The United States Army's presence in the Uinta Basin of northeastern Utah is primarily a tale of overcoming logistical nightmares. In 1879, Nathan Meeker and the other Anglo male employees at the White River Ute Indian Agency in northwestern Colorado were killed in an uprising that resulted from Meeker's overbearing efforts to turn the nomadic Ute into farmers. After a multi-day battle with US troops, extended negotiations, and the return of female hostages, the White River and Uncompaghre Ute bands lost their ancestral homes in western Colorado in 1881. They were forced onto the newly created Ouray Reservation, adjacent to the older Uintah Reservation in northeastern Utah, which had been set aside by President Lincoln in 1861. The remnants of Utah's various Ute bands had finally been forced onto the Uintah reservation in the 1870-'s. Recently arrived Euro-American settlers along Ashley Creek, northeast of the reservations, were terrified of the arrival of "hostile Indians" in the area and demanded a military presence in the remote region. They found a powerful supporter in Judge William Carter who had lost his significant business as a sutler when the army closed Fort Bridger in southwestern Wyoming. Carter persuaded the army to not only establish a post in the Uinta Basin, but return troops to Fort Bridger.

Even before Carter won the contract to supply the troops in the Uinta Basin, he began building a road across the incredibly inhospitable Uinta Mountains where the road summit was over 10,000 feet in elevation (Carter Road listed on National Register of Historic Places in May 2001). In 1881, the military entered the Uinta Basin and established Fort Thornburgh near the new White River Agency, but the next year the commanding officer moved the fort to a new location over 30 miles away at the mouth of Ashley Creek Gorge, close to the Anglo settlement on Ashley Creek. In 1882 and 1883 troops from Forts Bridger and Thornburgh worked feverishly to improve the road and build a telegraph line across the Uinta Mountains. This northern access road across the Uintas was only open for a brief period each year and plagued by wash outs, storms, ice, muddy bogs, steep dugways, and a myriad of other challenges that made freighting a difficult and risky business. The final straw for the US Army generals in Omaha were squatters that claimed prior rights on the military reservation and demanded exorbitant monetary settlements for their land. Fort Thornburgh was closed in 1884, but the army still felt a military presence was needed and sited closer to the Ute agencies.

In 1886, the army established a new post in the Uinta Basin much closer to the combined Ute Agency along the Uinta River. Remembering the fiascos with supplying troops across the Uinta Mountains the army searched for a more suitable route and the new railroad to Price, a southern approach, seemed more reasonable. "For the army's needs none of the existing roads provided what Nine Mile offered: the shortest distance from Fort Duchesne to a railroad, a more moderate grade, and a low pass through the Roan and Book Cliff Mountains" (Barton 1998:70-71).

Some sources attribute construction of the Nine Mile Road to the 9th Calvary, also known as the Buffalo Soldiers, stationed at Fort Duchesne. This appears mostly to be conjecture, an attempt to link the legendary troopers to the Nine Mile road. The 9th were never assigned construction details along the road, although they did perform short repair assignments in March 1889 and April 1891 (Gary Weicks, personal communication,

2009). Calvary units were generally given slightly more glamorous assignments. Coleman (1979:422) lists some of the general duties such as drills, guard duties, and marches that Buffalo Soldiers performed wherever they were stationed in the West, but then mentions several duties specific to Fort Duchesne. They garrisoned the post and helped build permanent dwellings for the officers and enlisted men. Eventually a hospital, commissary and storehouse would be built at the fort. They were assigned to locate and send Ute back to the reservation after they had returned to Colorado on hunting trips. They investigated disputes between Anglos and Ute, including some murders. One of their larger assignments was to keep Whites and their cattle off reservation lands, especially once the "sooners" started encroaching before the reservation opened in1905. They performed guard and escort duties along roads, including Nine Mile, and at train stations for Indian agents with annuity payments and army quartermasters with payrolls. They were probably the soldiers involved in the aborted robbery at Outlaw Point. They also enjoyed baseball and played against teams in Salt Lake and Vernal during trips to these cities.

Major Bush commanding two companies of the 6th Infantry from Fort Douglas in Salt Lake City (59 enlisted men and two officers) spent three weeks in the fall of 1886 making improvements and repairs to the road (Weicks 2008:63). Another detachment of the 6th out of Fort Douglas, commanded by Captain William Badger, made additional improvements for several weeks in the fall of 1887 (Weicks, personal communication, 2009). As with so much canyon lore there are conflicting accounts as to whether the soldiers improved an existing road or built a new route. A trail or informal road probably existed in the area because cattlemen and homesteaders had built cabins in the canyon. The railroad to Price was completed in 1883 and Weicks (personal communication, 2009) believes the Uinta Basin settlers forged some sort of route to allow them to transport goods from the railhead into the basin before 1886. Military records indicate the soldiers were sent to improve a "rough road," not construct it. The soldiers may have worked to significantly improve road sections by constructing dugways and stone embankments, particularly in the fall of 1887. Other sections, like portions of Gate Canyon, received little modification and the road remained informal following the natural drainage or landscape.

It is not clear from the records if the military made substantial improvements to the road. It is doubtful the soldiers created extensive modifications during the three weeks in 1886. However, a longer detail in the fall of 1887 may have allowed them the necessary time to make lasting improvements. Unfortunately Weicks' preliminary research does not clarify questions surrounding some of the more prominent features created along the road. For instance a substantial embankment and dugway construction near the top of Gate Canyon.

> *Markers 8 & 9 are at opposite ends of a footpath following the pre-1920's road for a walking distance of 1 ¼ miles. This section of road is believed to be part of the original 1886 military road. Some claim it was built decades later, ca 1917. It may have been early military, abandoned for the present route at some time and resurrected in the teens, then promptly abandoned again.*

Hiking, you will see retaining walls and culverts made of stone that help one appreciate the great labor that went into building the road. Cuts into the hillside often required removal of ledgerock by blasting and use of horse-drawn implements (Jenson 1993:8&9).

Another puzzle is there is no mention of military details working on the road after 1891. Weicks wonders if this means territorial government, local authorities, or gilsonite mine owners had assumed routine maintenance along the route, or are military records just incomplete?

Once the road was opened it became the primary route into the Uinta Basin, the stage, telegraph line, and all other freight followed the military route (Photo 8). The road primarily functioned between 1886 and the first two decades of the 1900's (Geary 1981a:151). Although estimates of the amount of traffic on the road vary, it is clear millions of pounds of freight moved along the road and Barton (1998:79) conservatively estimates that between 1886 and 1915 more than 50 million pounds were freighted, which represents more than 14,000 one-way trips. Most freight outfits were four-or six-horse teams pulling two wagons and the wagons could carry three to four tons of supplies (Barton 1998:77). A single 1887 Army quartermaster contract was for 2 million pounds of freight (Geary 1981a:141). It was said that you could not travel more than 15 minutes along the road without passing another traveler (Barton 1998:76). The 100 mile trip from Price to Vernal took 6 days in good weather, but much longer under less than ideal conditions. Teamsters left fleeting traces during their arduous trek along the road. Numerous axel grease and scratched inscriptions, ephemeral camps, and even a temporary forge location mark the route where road features may not be visible.

With army supplies and annuity goods for the Ute, wagons were always heavily loaded coming into the Basin. However, teamsters wanted a product to make the return trip profitable and wool became one product once the Uinta Basin developed a healthy wool industry. The first settlers were drawn to the area by notices of rich pasture land. Sheep herding was common beginning in the late 1870's and climaxed during World War I, but continued strong through the 1930's where over 100 thousand sheep grazed in the Uinta Mountains. However, much more profitable was the unusual solid hydrocarbon gilsonite that was named "after Sam Gilson, who first developed it in the Uintah Basin in the 1870's, Gilsonite is 99.6 percent pure hydrocarbon. It has many industrial purposed including bases for paints. When mining started in 1889 it became a common load freighted to Price and the railhead" (Jenson 1993:#3). Barton (1998:72) states it is "a rare hydrocarbon found in commercial quantities in only a few locations in the United States, has had many uses, including use as a sealant for beer barrels and as a base for paints, inks, and perfumes. The hauling of Gilsonite in 100-pound sacks provided a steady return-trip load for teamsters who were hauling freight to Fort Duchesne." In 1905, the Uintah Railroad from Colorado was completed to the gilsonite mines in Dragon and Watson and signaled the beginning of the end for the Nine Mile Road.

In 1905, the Ute reservations were opened to homesteading and thousands of individuals and families were lured to the Uinta Basin. Unseasonably mild and wet years prior to 1905 tempered the environmental

conditions in the region and many families were unprepared for the more normal, harsh upcoming years. Production of alfalfa seed was briefly seen as way to make a profit, but the collapse of that market soon followed and by 1925 many of the original homesteaders had given up on their efforts to make a living in the basin (Barton 1998).

The 1905 land rush was the apex of use along the Nine Mile Canyon road. The completion of the Uintah Railroad the same year removed most of the gilsonite freight traffic and in 1912 the Army abandoned Fort Duchesne which ended the need for military freighting. Political influence appears to have kept money flowing for road improvements and held some official traffic to the road, long after the economic flow had shifted to other routes. In 1920, the Indian Canyon road was improved and despite the steeper incline and higher elevation, automobile drivers chose it over the Nine Mile Canyon road because it was a shorter and better road. Geary (1981a:151) says the last freight was hauled across the Nine Mile road in 1918 and the last mail traffic was in the late 1930's. In 1934, the improved Daniels Canyon road, which ran through Strawberry and into Duchesne, became the main road into the Uinta Basin. Presently, this route is US Highway 40 and, with only minor adjustments, is still the primary highway for the Uinta Basin.

Community organization and development Typical 19th century Utah towns were carefully planned, relatively compact Mormon communities laid out in a grid with wide streets. Nine Mile Canyon was a very unique Utah community because of its linear haphazard arrangement extending for several miles along the road. Government entities, like the school and voting districts, were difficult to maintain because of this linear arrangement. Harper (42Cb610) is frequently referred to as a Nine Mile town or community, but never consisted of more than a dozen structures with only a handful of resident families. Gathering points along the road such as hotels, stage stops, saloons, stores, and telegraph stations offered some of the amenities of a town (Photo 1), but overall "they lacked the physical trappings of a town" (Barton 1998:82). For instance the canyon had a school, post office, several stores, but no formal center, church or other government buildings.

Evidence of Nine Mile residents' dependence on the road is seen in more than just their community layout. "Most of our farmers and early settlers were… also freighters. Money was not as plentiful in those days as it is today and any farmer who had either two, four, or six good horses and a couple wagons would be ready at most any time to make a trip on the freight road" (Geary 1981a:143). The economic activity was not just limited to serving as teamsters. "Most Nine Mile residents sold some type of service: forge work, feed, baked goods, butter and milk etc" (Jenson 1993:#15). This economic dependence is the primary reason people drifted away from the canyon as road traffic shifted to shorter, more dependable, or more saludorous routes. Most canyon settlers came between 1886-1890 and Spangler and Spangler (2005:96) notes that "less than one-third of the families listed as canyon residents in the 1900 census were still there 10 years later." Most of the homesteads, corrals, cabins, and landscape features still visible in the canyon date to this period of development.

Conditions along the road could be quite difficult. Initially there was no water between the Minnie Maud Creek and the Duchesne River near Myton, so teamsters had to carry feed and barrels of water for their animals for the

entire trip of 37 miles, which could last six days. A major stop developed at "The Wells about half way between Myton and Nine Mile:

> *Owen Smith came here in 1891 with his wife and five children. To establish an 'oasis' in the middle of 35 miles without water, Mr. Smith dug 185 feet into the dusty earth, struck water, and established 'the Wells.' The water, brackish and not good for human consumption, was only used for such things as watering livestock and doing laundry. But there was plenty of water. Cattle herds as large as 500 head watered in one stop; the well never went dry (Jenson 1993:#6).*

Weather conditions were also a significant challenge along the road. The road was frequently dry and the clouds of dust created by the wagons could be seen for miles. Teamsters often had to wear bandanas in order to breath. The occasional heavy rain could turn the road into a quagmire and deep ruts made travel difficult. Gate Canyon was prone to flash flooding, especially during the later summer months.

Cold, icy conditions and deep snow drifts were a frequent problem during winter months. Geary (1981a:148) provides the account of one road traveler who was slowly freezing riding in a wagon on cold winter day. His traveling companions forced the man to walk beside the wagons and rather cruelly whipped him at times to keep him moving and alive.

> *Pairs of horses on a team would have to be shuttled from the rear forward as one pair after another exhausted themselves beating the crusted snow, pawing it to break passage. Wallace Dennis freighted with his father in 1908. He reported that after a full day of hard work shoveling snow and changing horses, they could look back and see the smoke curling up from the log still smoldering at the previous night's campsite less than a mile away. Snow was more than three feet deep, and Wallace slept in a snow cave to escape the wind* (Jenson 1993:#19).

Preston Nutter's foreman complained of having to rescue witless homesteaders stuck along the road during the winter of the 1905 land rush. Weicks (personal communication, 2009) notes in January 1888 "the heroic effort of the 9th Cavalry to clear the snow clogged road to Price. It was reported that Captain Dawson, Troop B commander, with fifty troopers, cleared the road of snow that had been impeding freighting and travel. At some places on the summit near Whitmore's Ranch the snow was four to six feet deep."

> *In January of 1888 an article in the A&NJ* (Army and Navy Journal) *written by a Fort Duchesne correspondent reported that the post had been blockaded for nearly four weeks by incredible amounts of snowfall. All roads to the post were impassable and the temperature had dropped at one point to a low of minus 38 degrees with an average ranging near minus 24 degrees for the first three weeks of the New Year. No newspapers had reached the post since Christmas and but a very few letters had been gallantly delivered by valiant couriers using snowshoes* (Weicks 2008:64).

There could be other dangers along the road. Barton (1998:79) states the "Indians, rarely openly hostile, some turned to running off stock during the night, and the next morning they would offer to find the 'lost' stock for a fee" and as a result teamsters often traveled in teams. Generally people were helpful and thoughtful of others, but violence from ruffians and outlaws was not unheard of. For instance, the saloon at Brock's Ranch near the mouth of Gate Canyon had a bit of a reputation (Photo 6). The original owner of the Ranch may have killed a man and fled the canyon. Pete Francis bought the ranch, but was killed in a saloon brawl in 1902. His widow sold the ranch to Preston Nutter who closed down the saloon. The deep narrow twisting confines of Gate Canyon provide many suitable locations for an ambush. A story about one of these spots brings together the most popular name in the region with an account of his reputed wisdom and essential good nature:

> (One) *sharp bend in the road is called 'Outlaw Point,' legendary site of what was to be a bloodbath slaughter and robbery of Indian annuities and army payroll bound for the Uintah Basin. The plan of the ad hoc outlaw group was to ambush and kill all twenty soldiers in the escort guard, leaving no witnesses. While some members of the Wild Bunch allegedly took part in this scheme, Butch Cassidy, Elza Lay, and Sundance did not. They knew the army would hunt them relentlessly for such murderous actions. An informant put the army wise to the plan, and when the strongbox rolled through the guard was doubled. The highwaymen, … hastily called off the holdup massacre. Some think that Butch may have tipped off the army himself, realizing that he would be blamed for the crime whether he was really there or not* (Jenson 1993:#13).

Outlaw point, just like Ashley's or Powell's camp sites or many other incidents, have no physical features that have been identified on the ground.

Communication In addition to the stage and mail lines that used the Nine Mile route, the military's telegraph line paralleled the road. The telegraph line was built between May and August 1887 by four Fort Duchesne 21st Infantry companies (Weicks, personal communication, 2009). "In 1898 the Army's Fort Duchesne to Price telegraph line features section stations at Duchesne Bridge, The Wells, Lee's Ranch and finally Price itself. In 1899 the same line featured one additional station known as Brocks (later Nutter's Ranch) located between The Wells and Lee's Ranch stations" (Weicks 2008:68). A September 7, 1889 Salt Lake Tribune article mentions a telegraph station manned by a Signal Service man at Taylor Ranch. The unusual metal poles still visible in the canyon are associated with some interesting stories (Photo 2). Local lore holds that wooden posts were frequently stolen because they were valuable to the Ute and local homesteaders as firewood and fencing material, so the army switched to the metal poles to deter theft. The actual reason was probably a rather mundane bureaucratic government decision because the original the telegraph line, built in 1887, was composed of all wooden poles and soldiers complained about the frequent breaks in the line:

> *As a prelude to the closing down of Fort Bridger, in August 1890 Company K of the 16th Infantry at Fort Duchesne was ordered to perform a major upgrade of the telegraph line from that post to Price Station on the Denver and Rio Grande Railroad. Specifically, they were to replace every*

> *second wooden pole with an iron pole to ensure enhanced reliability of operation in maintaining communication with the outside world. This was probably an added measure taken by Army officials should there be any developing problems with the reservation bands of Utes* (Weicks 2008:66).

Early experiments with telephone service in the Uinta Basin focused on Fort Duchesne. Initially shorter lines were constructed to the base to allow civilians to access the telegraph station that was housed there. "In 1907 the Fort Duchesne telephone line was eventually expanded to run the entire distance between the post, Nine Mile Canyon, and finally Price" (Weicks 2008:67). Weicks (2008) highlights some of the problems with various telephone wires that began to replace the telegraph at the end of the 19th century. Copper was very conductive, but was fragile and frequently broke especially under poor weather conditions. This problem was amplified in the West with long stretches through rugged country. Copper wire was also popular with Native Americans who made it into a variety of earrings, bracelets and necklaces. Iron wire was much sturdier, but was not very conductive and introduced all kinds of atmospheric noises and interferences. A combination of the two metal types helped overcome their individual weaknesses and was used for the line constructed through Nine Mile in 1907:

> *Copper coated iron wire was generally used by the telephone companies. Hand drawn copper wire appeared on the scene in 1883 having been invented by Thomas Doolittle of the Bell Company. Besides being very strong, it had six times the conductivity of iron wire. And, this coated iron wire was extremely durable and very resistant to destruction. In 1986 long strands of this originally strung wire was still being used on the line through Nine Mile Canyon northeast of Price* (Weicks 2008:68).

For decades the Nine Mile Canyon Road and its features languished as a backwater. The sites associated with the road were ravaged by time, natural disasters, and human activity. Improvements to the modern road obliterated many sections of the old road, but in several locations pristine sections of the 1886 road still exist. Interest in the rock art and archaeology of the canyon steadily increased visitor traffic into the canyon during the

1980-'s and 90-'s. Development of natural gas fields on the West Tavaputs in the new millennium has lead to a significant increase in traffic along the old route. The road improvements necessary for the traffic and heavy use pose risks to the fragile cultural resources in the canyon (Photos 22, 23). Although the water trucks, semi-trucks, and other gas field traffic are significantly different from the historic traffic, they share a kinship with the wagons piled high with sacks of gilsonite that once travelled the road. In spite of the current boom, we are left to wonder how long before the Nine Mile road will once again pass into a period of quiescence.

The Nine Mile Canyon Cattle Industry

Nine Mile Canyon's cattle industry is predominately the story of one man's operation. There are a variety of ways to approach this discussion, but for this version we have chosen to provide a brief general discussion of

Utah grazing practices at the beginning of the 20th century, followed by a brief overview of Preston Nutter's life, and then compare and contrast Nutter's operation with more typical Utah conditions.

Utah's cattle industry It is generally agreed that the first significant Anglo presence in Nine Mile Canyon was a result of livestock operations. However, specific information about whom and when is nonexistent. Geary (1981b:46) states "no doubt cattle herds ranged through the area in the 1870s, as they did throughout eastern Utah. The Midland Trail, which was a well-established route by the late 1860s, passed within two miles of the canyon." Many of the early cabins and other structures in the canyon were undoubtedly associated with the livestock industry (Photo 5). Spangler and Spangler (2005:89) reports that the first cabin to be built in the canyon was owned by Alfred Lunt, a wealthy Nephi, Utah resident. Lunt ran cattle in the canyon, but there is no land record for the cabin, which is no longer standing. The most visible features and current landscape in the canyon are a result of more than one hundred years of ranching and homesteading.

To understand Nine Mile's cattle industry, it is best to review Utah's livestock practices to provide some context. Peterson (1989:300) notes "the history of grazing in Utah is recognizably different from other regions and left lasting social and natural imprints." Physical barriers isolated Utah from the great north/south sheep and cattle drives that unified and homogenized other western regions into a single Southwestern livestock culture, otherwise known as the "Texas Invasion" which is based on Hispanic traditions and generally entailed outfits owning a large number of cattle (Peterson 1989:301). In contrast, Mormon towns consisted of a great number of farm-based owners wherein each person owned a small number of animals. "The Mormon mode of settlement induced cooperative effort" (Peterson 1964:205). Mormon settlers' grazing practices were shaped by the Church and livestock pools were intermixed with stock and husbandry techniques from the Northeast and Midwest. As Mormon settlements lay across the main overland trail this stocking pattern was reinforced as westward bound immigrants traded or left worn out, lame, and surplus stock for supplies or fresh teams as they passed through the territory.

Early Mormon settlers lacked the economic means and available supplies were scarce, so range fences were seldom constructed. For several years there was no fence law in Utah and cattlemen were liable for damages to farmers' fields. However, Mormon leader Brigham Young encouraged farmers to enclose vast tracts of land "about fifty thousand acres" until "all vacant land is substantially enclosed" (Peterson 1964:200). Mormon livestock operations tended to be small family farms centered in towns and Peterson (1989:301) notes that town herd grounds and community herding practices quickly became common in Mormon communities. This practical solution was strongly reinforced by their religious system and a legal framework evolved to regulate and enforce the system (Peterson 1964). When land was plentiful, grazing pressure was not noticeable and community herding establishment of grazing claims and ownership was not important:

> *In the sense we have come to know them, there were no ranches in Utah in 1870. Far from being an offshoot of the Spanish ranching culture, Utah's grazing practices and institutions were shaped by the Mormon penchant for cooperation and group life. Most Saints lived in towns from which they worked small general farms. Almost all kept a few head of cattle and sheep. When*

> *these were not fed on the farm, they were grazed in town pools or co-op herds… Mormon pools differed in the great number of farm-based owners and the small number of animals owned by each person (Peterson 1989:303).*

Peterson (1989:317) vividly illustrates how common this small operation practice was in Utah with a Forest Service example:

> *For example, in 1918 permits were issued for 200,000 cattle and 800,000 sheep belonging to 7,582 separate cattle grazers and to 1,406 sheepmen, making average permit allowances of 24 cattle and 570 sheep. By contrast, Arizona, with public lands similar in extent and character, had a total of 603, or less than 10 percent as many licensees.*

Peterson (1989:318) highlights this pattern further with a testy response from the Washington Office to a Manti National Forest request for more permit request forms. How could the forest need that many forms?

The arrival of government claims, new residents, and a growing population soon clashed with this casual and even lackadaisical practices. Utah legislature initially attempted to control and distribute federal land for grazing which was eventually overturned. So they turned to controlling herds and people. They passed laws concerning branding and livestock theft, and required herdsmen to be licensed and bonded (Peterson 1964:205). By the 1870's, as Utah's population grew and more outsiders arrived, conflict became more common in Utah over grazing range, sheep versus cattle, fencing, and other issues.

Nine Mile's cattle industry, like the Fremont manifestation and Anglo community organization along the road, shares some aspects of Utah's overall pattern but it was fundamentally and significantly different from the rest of the state. The primary difference was that Nine Mile Canyon served as the headquarters of Preston Nutter, who owned a vast enterprise. Presently, all the factors are not known as to why Nutter decided to move his cattle operation into Nine Mile Canyon, but one reason could have been to avoid a culture clash between the Texas Invasion and local Mormons. Peterson (1989:311) notes some nasty results around Bluff in southeastern corner of the state when the "Texas culture" moved into Utah. Since the residents of Nine Mile Canyon were predominately non-Mormon, Nutter may have been able to avoid some of the same consequences.

Preston Nutter (1850-1936)

Preston Nutter's life story is a classic Old West fable and rags-to-riches story of the Gilded Age. Born in Virginia in 1850, he was orphaned at age nine. Unhappy with relatives, he left them for a brief tour as a cabin boy on the Mississippi River and at the age of 13 he headed west. The country was mired in a civil war, but

Nutter considered the year a seminal one and used the "63" brand during most of his adult life. Not a great deal is known about his formative years and it is not clear how much formal education he ever received. He spent

time in the mine fields of Nevada and Utah and took some business education classes in San Francisco while he worked as a wrangler at the Cliff House.

In 1873, he and a friend left Idaho for a new gold strike in southwestern Colorado's San Juan Mountains. They joined a group of similarly destined miners in Provo, Utah. A fast-talking individual named Alfred Packer convinced the party he could be their guide and get them to Colorado. Once in Colorado, Nutter and most of the party decided to stay the winter with Chief Ouray and his band near Montrose. However, Packer talked a few of the men into continuing into the San Juan Mountains, in spite of the warnings from the Ute. Nutter encountered Packer the next spring:

> *His (Packer's) accounts of the fate of his companions were so varied that Nutter soon surmised that all was not as Packer presented it and forced him to return to the San Juan country to look for the other men. Packer led Nutter on a wild goose chase for several days; it was not until the snow melted in the summer that the remains of the five men, whom Packer had eaten, were found. When Packer was eventually brought to trial for his crimes in 1883 at Lake City, Colorado, Nutter was the prosecution's chief witness* (Price and Darby 1964:235).

Nutter had worked in several mining communities, but in Colorado he finally realized there were better prospects than grubbing for ore. Price and Darby (1964:235) note that he saw there was "an acute shortage of transportation to get ore out of the mountains", so he brought mules from San Diego to sell in Colorado, used the proceeds to establish a cattle herd and began his life-long career in the cattle industry. During his relatively brief stay in southern Colorado Nutter served a term in the Colorado State House as a democrat and although he served on several committees, he grew bored and left after a single term. He would later claim his brief political career was the only time he ever wasted.

Nutter moved to Grand Junction, Colorado, to expand his cattle herd, but found there was little land available. He moved west to the area north of Thompson Springs in eastern Utah where there were few residents and good grazing. Through a variety of partnerships, permit acquisitions, and wise business decisions, he was able to expand his herd and business operations. In 1893, he and two partners obtained a grazing permit in Strawberry Valley and in 1902 he purchased the Brock Ranch in Nine Mile Canyon. In 1906, he moved his herds to the Arizona Strip (the area between the Utah border and Grand Canyon) and the West Tavaputs Plateau above Nine Mile. According to Anderson (n.d.), it appeared Nutter had been using the West Tavaputs previously, illegally grazing his cattle on federal land. In 1908, at the age of 58, he married Katherine Fenton and they had two children, Catharine and Virginia.

Nutter improved his herd and many authors claim his operation had 25,000 head during its prime years. Later in his life Nutter worked closely with state and national leaders to construct "a plan for orderly use of public lands" (Price and Darby 1964:250). Price and Darby (1964:250-251) state that Nutter spent time with Washington representatives establishing a grazing service, discussing the terms of the Taylor Grazing Act, and

corresponding with J.N. Darling, chief of the Bureau of Survey, about turning the Arizona Strip into a big game preserve.

In January 1936, Nutter passed away in Salt Lake City and the Salt Lake Telegram (January 28, 1936) would say of him, "One of the last links between the old west and the new…, over six feet tall, white haired, grey eyed, straight as a lodge pole pine and physically hard as the saddle he rode. From the Masonic temple, Wednesday afternoon will be buried Utah's last great cattle king – Preston Nutter." Nutter's wife and daughter continued to operate the cattle company for decades after his death. The heavily modified complex at Nutter's Ranch still remains as do many of his crew's line cabins, but many of the other features of his empire are gone or have received scant attention. Corrals, cairns, and range fences are rarely recorded, but are extensive. Campsites are recorded by professional archaeologists, but are not associated with Nutter or considered part of the larger cultural landscape.

Utah's Cattle Baron Like the rest of Utah, small family operations existed and still persist in Nine Mile Canyon, but they were the notable exception. Preston Nutter's company was one of perhaps only three large cattle operations to have existed in Utah at the beginning of the 20th century and eventually came to be headquartered in the canyon. All three of Utah's large cattle operations were located in eastern Utah where the Texas model had the most influence. Nutter's operation was the most southwestern appearing of the three. Preston Nutter was the antithesis of Utah's typical cattlemen who owned a small herd and was tethered to a town. Not only was his herd vast, but his headquarters was in a remote area. His daughter noted that, "there is no record of how many cattle he ran during this period, but from the number he was selling he must have owned a good size herd. Many people were of the opinion that Nutter himself did not know the number of cattle he owned" (Price and Darby 1964:239) Nutter was not tied to a town or a strong community leader as was typically said of Mormon cattlemen during the period. In fact, "when old friends heard of Nutter's move into this area, they decided he had finally turned into a hermit" (Price and Darby 1964:246). The Nutter operation also embodied the "Americanization" of Utah's agriculture that was an important movement as part of Utah's effort to gain statehood, which eventually happened in 1896. Peterson (1974:109) argues that "a shift from self-sufficient and subsistence farming to commercial agriculture characterized the decade" (1890's).

Tough, hard, intimidating, frugal, determined, builder, practical, and energetic are just some of the words which have been used to describe Preston Nutter. He was a complex man who was at home on the Western frontier. There are a few keys to Nutter's success. Most entrepreneurs know hard work and personal sacrifice are critical to success. Nutter spent countless hours riding and managing his business, and while many have worked as hard as him, no one worked harder. His commitment to his business can be seen in not marrying until he was nearly 60. Although he owned a home in Salt Lake City and spent time there, particularly after he married late in life, he spent untold number of weeks and months traveling and visiting the various parts of his cattle kingdom. Nutter preferred to travel on mules and reportedly said, "a mule knows his limitations and when to stop. He has more sense than a horse and some men" (Price and Darby 1964:251).

However, there were some other fundamental factors that contributed to Nutter's success. First, like a typical frontiersmen, he was not scared of a fight. He could be very intimidating, but he generally chose to fight in a more sophisticated fashion. Nutter left a prodigious amount of financial, legal, and personal documents now housed at the University of Utah, but much of the material has not been seriously explored by historians and published articles tend to side-step some of his negative characteristics, such as bribing officials and cheating on taxes. Wadley (1982) noted the collection contains a prodigious amount of legal correspondence evidencing how much time and money he invested in lawyers. "He was a ruthless competitor, one who forced his will not with a six-gun but with the courts, using a posse of lawyers to force other ranchers to give up their claims" (Spangler and Spangler 2005:67). Leick, et al. (2007-50-51) notes:

> *He 'was not a man afraid of a fight, either on the range or in the courts. Especially in the latter, he was a capable opponent, as he was willing to pay to secure good legal counsel to win his cases. In fact, when asked later why he seemed to delight in the court battles, Nutter replied that it was because when he won he knew he was right*.

A commonly expressed sentiment is "Nutter apparently weathered several depressions in the cattle industry and in the process because a national celebrity and consultant to Washington politicians on grazing issues" (Spangler and Spangler 2005:68). Most authors make this observation, but do not elaborate on what difficulties Nutter survived. A closer review of Price and Darby (1964) highlight some of the crises Nutter endured: the severe drought and winter of 1886, the Silver Panic of 1893, the collapse of the beef market after World War I, and the Great Depression. All these incredibly difficult events Nutter seems to have weathered well and undoubtedly there were a number of factors, even an amount of luck, but a couple practices stand out. Nutter's animals survived, he took advantage of connections and government programs, and he controlled his debt so in difficult times he was able to buy when others had to sell.

Nutter worked with stock his entire life and accumulated knowledge about the animals he raised so they survived long or difficult drives, obtained the water and feed they needed, and improved their breeding. Price and Darby frequently mention his extensive experience working with animals. Nutter was also concerned about the quality of his stock. It is not entirely clear from the literature which breed of stock Nutter raised. Nutter's initial herd he brought from Colorado was "a breed referred to as 'pilgrims' or descendents of the Texas longhorn intermingled with Durham breeding" (Price and Darby 1964:237). Evans (1995) attributes Nutter's business success to his "uncanny foresight" to turn to Herefords in 1886. Price and Darby (1964:237) note the story of Nutter trading his mixed stock for Cleveland Cattle Company Herefords in 1886. "The Cleveland cattle were superior in breed and required less range country while supplying more beef for the feed than the mixed longhorn and Durham breed." However, later they note "from 1900 until the late twenties most of his cattle were Durham, but then he switched to Hereford" (Price and Darby 1964:247). I suspect the severe winters and droughts of the late 19th century depleted Nutter's stock and he was forced to replace them with what could be purchased in Arizona and Colorado. Durham, now called milking shorthorns is an English breed that emerged in the late 18th century.

> *Shorthorns are medium-sized with compact, low-set, rectangular bodies. In color they vary from red to white or any combination of these colors, with a predominance of roan. Because of their strength and good temperament, Shorthorns were occasionally used as draft animals. The Milking Shorthorn, a dairy breed developed in England from the Shorthorn, is appreciated for its adaptability to different climates, its efficient use of feed, and the superior protein-to-fat ratio of its milk (Columbia Electronic Encyclopedia).*

In many early pictures and paintings the Durham have a piebald appearance very similar to the longhorn, but their shape is much boxier and squatter than the lean shanks of the legendary longhorn.

In today's world corporations commonly promote how important their workforce is to their success. Nutter seems to have understood this principle many years before it became widely accepted. The Nutter Collection at the University of Utah contains numerous folders, probably containing hundreds of letters, from individuals throughout the region and country soliciting Nutter for employment (Alison Leick, Personal Communication, 2009). From this large pool of applicants Nutter was able to hire the best help and although he was very strict with the hired hands, they seem to have performed admirably and were very loyal. Bailey (2004) notes that while former hands may have complained about a few minor things, overall their level of awe and respect for Nutter seems incredible. W.C. McCoy served as Nutter friend and "trusted lieutenant" (Price and Darby 1964) for decades, providing continuity with his intimate knowledge of Nutter's operation. Perhaps the most blatant effort to protect his herds is the now famous quote from Price and Darby (1964:241), 'like a lot of other ranchers, Nutter often found it more practical to hire the outlaws to work as cowhands during their 'cooling off' periods. Most of them were cowboys at one time or another and made top hands, but what was more important their code prevented them from rustling from an employer."

Nutter was able to arrange several important deals that kept his operation very lucrative. He secured the grazing rights in Strawberry Valley, and he won the contract to provide beef to the Army and Indian agencies at Fort Duchesne. Various authors mention his use of soldier or Indian script to purchase water rights or land. During each major financial crisis, Nutter had access to credit or funds which helped his enterprise survive when other ranchers failed. The size of his operation was important, but the control of his debt played a key role.

Nutter's control of resources One aspect of his business practice that allowed Nutter to be so successful was his control of resources and assets. Good lawyers helped him secure legal title to water and grazing lands and he could also intimidate or wear down opponents and protect his interests. He was able to take advantage of the informal approach that characterized other Utah grazers of the period, which lead many to view him as ruthless. Nutter was also not above bending the rules or challenging authority to benefit his interests. In addition to the lack of formal claims on range and water, many of Utah's early ranchers were not particularly skilled or careful in their herd management. Teenage cowboys ran many of these herds and enjoyed the lifestyle it afforded. However, their efforts were not always profitable. Peterson (1989:309) notes the example of two boys in Castle Valley. "For one thing the management of the two boys was woefully inept. They branded some 700 calves

each year, but when they collected their stock late in 1878 they tallied only 1,700 head, indicating that each year they had lost upwards of 700 animals."

Through his influence, money or good fortune Nutter was able to secure several important leases. In 1886 he was able to secure the range between Thompson Spring and Hill Creek in eastern Utah; a 10 mile x 30 mile area (Price and Darby 1964:236). This location was near a railhead which proved especially important because the devastating winter, that ruined many cattlemen in Utah, was preceded by a severe drought the summer before. "Nutter kept them bunched in the vicinity of Thompson's Spring where the railhead made it possible to ship in feed. At this time feeding was looked upon as an oddity rather than the custom; but there is every indication it paid-off because his losses were small and receipts show him buying more cattle throughout the entire bleak winter" (Price and Darby 1964:238).

Nutter's next move came in 1893 when he and partners used their influence in Washington (Price and Darby 1964:241) to gain the grazing rights in the lush Strawberry Valley on the Uintah Indian Reservation and that same year he decided to move into the Arizona Strip. "Several cattle and sheepmen from around St. George were using the strip, but they were doing so without valid government titles" (Price and Darby 1964:243). A range war soon developed. "He developed water holes of his own, and then took necessary steps to acquire legal titles on some of the land and springs, using preferred Indian scrip that he bought in Washington, D.C. at a premium price" (Price and Darby 1964:244). As the situation intensified Nutter began buying out the other operations and "before the turn of the century, he had acquired most of the cattle outfits on the Strip" (Price and Darby 1964:244).

The loss of the Strawberry lease (1898) turned Nutter to Nine Mile Canyon and the West Tavaputs Plateau. After establishing his base in Nine Mile he set about building roads and fences to help control his stock. Unlike the freewheeling teenage cowboys, Nutter was a shrewd businessman who understood the need to manage his assets, even to the point of being cruel. Nutter was considered frugal or cheap, depending on a person's perspective. He and his son-in-law would not "allow their ranch hands to slaughter cows for their own consumption (although several sources informed that the cowhands did at time slaughter calves that were unmarked) (Bailey 2004:12). In one case, cowboys waited several days for anticipated supplies to arrive. When the delivery failed to show, hunger finally forced them to kill a calf. Nutter happened to ride into camp while they were dressing the beef.

Nutter was not above using less than legal means to obtain assets. In 1906, a year after a portion of the West Tavaputs of the Uintah Reservation was transferred to the National Forest system, a Forest Ranger noted:

> *Finally I reached the ridge west of Sowers Canyon and there, to my surprise, before me were three large fields fenced and cross-fenced and the evidence showed that these fences weren't of recent construction… He (Hanson) informed me that Preston Nutter, a very prominent cowman owned one of these places and that a Mrs. Earl owned one and a man by the name of McCoy owned the other, but Nutter controlled them and besides that he had bought up quite a lot of old*

> *soldier script and had applied that on most of the live springs in the boundary and was at that time running several hundred head of cattle in that vicinity. Hanson further told me that Nutter had bribed the surveyors who had the contract to sectionize that part of the reservation, and that the outside boundary line, instead of following the water shed as it should have, had been made to cut out the territory controlled by Nutter"* (Anderson n.d.:4-5).

Months of legal wrangling ensued, but Nutter eventually vacated the area. The personal accounts of Barton and Anderson highlight the amount of time and effort Nutter invested to create fences and gain ownership of permits and water and how important these things were viewed by Nutter.

Nutter's desire to manage his resources can also be seen in the final stages of his life. The lands he paid to graze had been repeatedly trespassed by other herds, especially sheep (see Price and Darby 1964:249 for one humorous incident). As a result, Nutter worked for more order on the range and various state efforts eventually lead to the Taylor Grazing Act. "Nutter did not look upon the Taylor Act as a panacea, but he was impressed by its terms and felt that its intent 'to stabilize the livestock industry' was worthy" (Price and Darby 1964:250). He saw it mainly as a way to control the itinerant sheep men.

Seasonal movement Another fundamental pattern which existed in Utah and is practiced throughout the world by most pastoral cultures is seasonal transhumance. In Utah, this pattern generally consisted of grazing livestock in the mountains or uplands during the summer and wintering them in lower elevations near towns. The small scale and seasonal movement of Utah's livestock continues to the present. Most of the ranchers the author has worked for or known have had full time jobs with the bank, school district, road department, local government or other entity and taken their cattle to "the mountain" or other highland public range during the summer and wintered them near their homes.

Like the rest of Utah, Nutter and the Nine Mile Canyon cattlemen followed seasonal transhumance. Lunt and the original cattlemen only used the area seasonally. Nutter on the other hand moved into the area and ranged his cattle over a vast area. Nutter found rich summer grazing lands first in the Strawberry Valley and when those permits were not renewed, later on the West Tavaputs Plateau. Geary (1981b:44) notes the mild climate in Nine Mile:

> *The climate, too is considerably milder than that of the Uinta Basin. The reasons for this seem to be primarily the air drainage provided by the canyon and perhaps also the tendency of the south-facing cliffs to hold the sun's warmth in the winter. In any case, old-timers in Nine Mile brag that they can raise fruits that would be impossible to raise in the Basin.*

Price and Darby (1964:246) note the ideal aspects of the area for Nutter's herd:

> *The lower elevations of both Range Valley and Nine Mile Canyon made good winter country for steers that were not shipped in the fall. From the West Tavaputs summer range, there were*

natural drifts into both areas. He kept the Arizona Strip for breeding purposes, but the northeastern section of Utah became his new home base of operations.

At the height of his operation Nutter was using the Arizona Strip for breeding, the West Tavaputs for summer range, and Nine Mile and Range Creek for wintering.

The vast scale of this business was probably unimaginable to the typical Utah farmer. Price and Darby (1964:245) note that "he owned about 25,000 head of cattle" in 1901. This figure is widely quoted, but has never been verified. In 1921 Nutter had a spat with the Carbon County. He claimed to only have 1000 cattle, but after a visit to Nine Mile Canyon the county assessor insisted he had 1500 head. The district court decided that he should be assessed for 1200, but the state supreme court ruled the correct number was 1500 head (Watt 1977:54). Although Nutter would have had herds in Arizona and perhaps Range Valley, this seemingly low number may suggest his herd was not quite as large as frequently quoted. Nutter never made a statement about the size of his herd, but "he was much too shrewd a businessman not to have had a reasonably accurate tally, but cattlemen are, by tradition, a silent lot when it comes to discussing their business" (Price and Darby 1964:239). As the Carbon County example shows he was also not above misstating the number of his cattle to reduce taxes and business expenses.

Nutter's wife and eventually his daughter and son-in-law continued to manage the Nutter cattle operation after his death. Changes in public land management and reduction in herd size with the implementation of the Taylor Grazing Act, technological innovations, economic development and other factors all greatly reduced the extent of the Nutter operation. The Ranch is now owned by the Hunt Oil Company, which continues to graze cattle, but is improving wildlife and other opportunities on the former Nutter lands.

Historic Summary

Nine Mile Canyon was a busy transportation route between 1886 and the 1930's. Supplies for the Ute and Army, wool, gilsonite, mail and people all moved along this vital link between the railroad and Uinta Basin settlements. Nine Mile also became the headquarters of Utah's largest cattle operation. Preston Nutter's cattle empire was atypical for Utah, but represents the archetypical Western cattle baron. The rich historical legacy of Nine Mile needs considerable refinement in its telling. It is also needs substantial improvement in the documentation of the physical remains that are so common throughout the region. The rich history is waiting for the sustained and coordinated documentation effort that has been produced for the rock art and Fremont material culture.

Styles Associated with Rock Art Sites

Eastern Great Basin Styles

Julian Steward described a Great Basin Curvilinear Style of petroglyphs he found throughout the Great Basin, including western Utah (1929:220). The style consists principally of curvilinear design elements, such as meanders and wavy grid patterns that often fill an entire surface of a boulder. The style also includes circles, chains of circles, spoke wheels, foot and handprints, animal tracks, mountain sheep, simple human stick figures, and abstracts that defy description. These images are believed to be attributed to the Desert Archaic Culture (cf. Jennings 1957), and it is believed to have been executed from Archaic times through the Formative period, along with the addition of small Fremont anthropomorphs. These images extend farther eastward into Utah than Steward realized, and they are likely present in Nine Mile Canyon (NMC).

Building upon Steward's earlier work in the Great Basin, Robert E. Heizer and Martin A. Baumhoff published the results of a three-year long rock art study in Nevada and eastern California. They identified five main styles: Great Basin Pecked, Great Basin Painted, Great Basin Scratched, Puebloan Painted and Pit and Groove (1962:197). The Great Basin Pecked style extends eastward far into Utah. This style was further divided into two sub-style categories: the Great Basin Representational and the Great Basin Abstract Style.

Great Basin Abstract Style The Great Basin Abstract Style is divided into the Great Basin Curvilinear Abstract and the Great Basin Rectilinear Abstract Styles. The definitive elements of the Great Basin Rectilinear Abstract style are dots, rectangular grids, bird tracks, rakes and crosshatches, while those of the Great Basin Curvilinear Abstract are circles, concentric circles, chain of circles, sun disks, curvilinear meanders, stars and snakes. They suggested that these two styles date at least from about 1000 B.C. and lasted to about A.D. 1500 (1962:233).

There are inherent problems determining the presence of Archaic Great Basin Abstract style panels in NMC because the defining images – circles, meandering lines, etc. – are found in many of the Fremont panels in the area, and even in some of the Ute panels. It is quite probable that some of the panels are indeed attributable to Great Basin styles, but it remains difficult to verify this without more detailed examination of repatination levels and superposition of Archaic Great Basin figures by more recent Fremont and Ute figures. Furthermore, Sally Cole (1987, 1990) has defined an Archaic Abstract Style in eastern Colorado that is similar to those defined by Steward (1929) and Heizer and Baumhoff (1962) for the Great Basin, suggesting Archaic expressions shared similarities across broad regions that undoubtedly would have included NMC. At least 12 rock art sites have been identified within NMC with Archaic elements, and it is anticipated that specific examples of Archaic Great Basin and/or Archaic Abstract styles will be identified through more detailed examination of the data.

Table 3: Rock Art Sites and Associated Features

Site No.	*Petroglyph*	*Pictograph*	*Other Features*	*Dateable Organics*	*Ceramic Artifacts*	*Lithic Artifacts*
42Cb0011	X	X	-	-	-	-
42Cb0012	X	X	-	-	-	-
42Cb0014	X	X	RS	-	-	-
42Cb0016	X	X	-	X	X	X
42Cb0017	X	-	-	-	-	-
42Cb0018	X	-	RS	-	-	-
42Cb0030	X	X	AP	X	X	-
42Cb0031	X	-	-	-	-	-
42Cb0034	X	X	RA	X	X	X
42Cb0035	X	-	-	-	-	-
42Cb0037	-	X	AQ, AE	-	-	-
42Cb0038	-	X	-	X	-	-
42Cb0039	X	-	-	-	-	-
42Cb0040	X	X	AP/DE	-	-	-
42Cb0043	X	-	-	-	-	-
42Cb0045	-	X	-	-	-	-
42Cb0049	X	-	-	-	-	-
42Cb0050	X	-	-	-	-	-
42Cb0052	X	-	-	-	-	-
42Cb0053	X	-	-	X	-	-
42Cb0113	X	-	-	-	-	-
42Cb0114	X	-	-	-	-	-
42Cb0115	X	-	-	-	-	-
42Cb0116	X	-	-	-	-	-
42Cb0117	X	-	-	-	-	-
42Cb0118	X	-	-	-	-	-
42Cb0119	X	-	-	-	-	-
42Cb0120	X	-	-	-	-	-
42Cb0121	X	-	-	-	-	-
42Cb0122	X	-	-	-	-	-

Table 3: Rock Art Sites and Associated Features (continued)

Site No.	*Petroglyph*	*Pictograph*	*Other Features*	*Dateable Organics*	*Ceramic Artifacts*	*Lithic Artifacts*
42Cb0138	X	-	-	X	X	-
42Cb0141	X	-	-	X	-	-
42Cb0144	X	-	-	-	-	-
42Cb0145	X	-	-	-	-	-
42Cb0146	X	-	-	-	-	-
42Cb0204	X	-	-	-	-	-
42Cb0205	X	-	-	-	-	-
42Cb0206	X	-	SD	-	-	-
42Cb0207	X	-	-	-	-	-
42Cb0208	X	-	SD	-	-	-
42Cb0209	X	-	SD	-	-	-
42Cb0211	X	-	AD	-	-	-
42Cb0212	X	X	AD	-	-	-
42Cb0213	X	-	-	-	-	-
42Cb0214	X	-	-	-	-	-
42Cb0230	X	X	-	-	-	-
42Cb0238	X	-	-	-	-	-
42Cb0239	X	-	-	-	-	-
42Cb0240	X	-	-	-	-	-
42Cb0242	X	-	-	-	-	-
42Cb0264	X	-	RS	-	-	-
42Cb0313	X	-	RS	X	-	-
42Cb0319	X	-	-	-	-	-
42Cb0338	X	-	-	-	-	-
42Cb0339	X	X	-	-	-	-
42Cb0340	X	X	-	-	-	-
42Cb0446	X	-	AP, AQ, RA	X	X	X
42Cb0585	X	-	-	-	-	-
42Cb0586	X	-	-	-	-	-
42Cb0587	X	-	-	-	-	-

Table 3: Rock Art Sites and Associated Features (continued)

Site No.	*Petroglyph*	*Pictograph*	*Other Features*	*Dateable Organics*	*Ceramic Artifacts*	*Lithic Artifacts*
42Cb0588	X	-	-	-	-	-
42Cb0589	X	-	-	-	-	-
42Cb0590	X	-	-	-	-	-
42Cb0591	X	-	AP	-	-	-
42Cb0592	X	-	AE/SR/DE	-	-	-
42Cb0593	X	-	AP	-	-	-
42Cb0594	X	-	-	-	-	-
42Cb0595	X	-	-	-	-	-
42Cb0600	X	-	-	-	-	-
42Cb0601	X	-	-	-	-	-
42Cb0604	X	-	AD	-	-	-
42Cb0605	X	-	-	-	-	-
42Cb0607	X	-	-	-	-	-
42Cb0609	X	-	-	-	-	-
42Cb0614	X	-	-	-	-	-
42Cb0618	X	-	-	-	-	-
42Cb0619	X	-	-	-	-	-
42Cb0621	X	-	-	-	-	-
42Cb0622	X	-	-	-	-	-
42Cb0623	-	X	-	-	-	-
42Cb0624	X	-	-	-	-	-
42Cb0625	X	-	-	-	-	-
42Cb0626	X	-	-	-	-	-
42Cb0628	X	-	-	-	-	-
42Cb0629	X	-	-	-	-	-
42Cb0630	-	X	-	-	-	-
42Cb0631	X	X	-	-	-	-
42Cb0632	X	-	-	-	-	-
42Cb0634	X	-	-	-	-	-
42Cb0635	X	-	-	-	-	-

Table 3: Rock Art Sites and Associated Features (continued)

Site No.	*Petroglyph*	*Pictograph*	*Other Features*	*Dateable Organics*	*Ceramic Artifacts*	*Lithic Artifacts*
42Cb0638	X	-	-	-	-	-
42Cb0642	-	X	-	X	-	X
42Cb0643	X	-	-	-	-	-
42Cb0646	X	-	-	-	-	-
42Cb0647	X	X	-	-	X	-
42Cb0652	-	X	-	-	-	-
42Cb0656	X	-	-	-	-	-
42Cb0657	-	X	-	-	-	-
42Cb0658	X	-	RA	X	-	-
42Cb0659	X	X	-	-	-	-
42Cb0660	X	-	-	-	-	-
42Cb0661	X	-	-	-	-	-
42Cb0664	X	-	RA	-	-	-
42Cb0665	X	-	-	-	-	-
42Cb0666	X	-	-	-	-	-
42Cb0674	X	-	RS	-	-	-
42Cb0676	X	-	-	-	-	-
42Cb0678	X	-	-	-	-	-
42Cb0679	X	-	-	-	-	-
42Cb0680	X	-	-	-	-	-
42Cb0682	X	-	-	-	-	-
42Cb0683	X	-	BG	-	-	-
42Cb0684	X	-	-	X	-	-
42Cb0685	X	-	-	-	-	-
42Cb0686	X	-	-	-	-	-
42Cb0687	X	-	-	-	-	-
42Cb0688	X	-	-	-	-	-
42Cb0689	X	-	-	-	-	-
42Cb0691	X	-	-	-	-	-
42Cb0692	X	-	RS	-	-	-

Table 3: Rock Art Sites and Associated Features (continued)

Site No.	*Petroglyph*	*Pictograph*	*Other Features*	*Dateable Organics*	*Ceramic Artifacts*	*Lithic Artifacts*
42Cb0693	X	-	-	-	-	-
42Cb0695	X	-	-	-	-	-
42Cb0696	X	-	-	-	-	-
42Cb0698	X	-	DE	X	-	X
42Cb0699	X	X	-	-	-	-
42Cb0700	X	-	-	-	-	-
42Cb0701	X	-	RS	X	-	-
42Cb0702	X	-	-	-	-	-
42Cb0703	X	-	-	-	-	-
42Cb0704	X	-	-	-	-	-
42Cb0705	X	-	-	-	-	-
42Cb0707	X	-	-	-	-	-
42Cb0708	X	-	-	-	-	-
42Cb0709	X	-	-	-	-	-
42Cb0711	X	-	DE	X	-	-
42Cb0712	X	-	DE	X	-	-
42Cb0713	-	X	-	-	-	-
42Cb0714	X	-	-	-	-	-
42Cb0715	X	-	-	-	-	-
42Cb0717	X	-	AP	-	-	-
42Cb0718	X	-	-	-	-	-
42Cb0723	X	X	-	-	-	-
42Cb0724	X	X	-	-	-	-
42Cb0725	X	X	-	-	-	-
42Cb0734	-	X	AP	-	-	-
42Cb0735	X	-	-	-	-	-
42Cb0742	X	X	AD	-	-	-
42Cb0743	X	X	AE	X	-	-
42Cb0744	X	-	-	-	-	-
42Cb0745	X	-	AE	-	-	-

Table 3: Rock Art Sites and Associated Features (continued)

Site No.	*Petroglyph*	*Pictograph*	*Other Features*	*Dateable Organics*	*Ceramic Artifacts*	*Lithic Artifacts*
42Cb0746	X	-	-	-	-	-
42Cb0747	X	-	-	-	-	-
42Cb0748	X	-	-	-	-	-
42Cb0750	X	-	-	-	-	-
42Cb0752	-	X	-	-	-	-
42Cb0753	X	-	-	-	-	-
42Cb0754	-	X	-	-	-	-
42Cb0755	X	-	-	-	-	-
42Cb0756	X	X	-	-	-	-
42Cb0757	X	-	RA/RS	X	-	X
42Cb0758	X	-	-	-	-	-
42Cb0759	X	-	-	-	-	X
42Cb0760	X	-	-	-	-	-
42Cb0766	X	-	-	-	-	-
42Cb0767	X	-	-	-	-	-
42Cb0768	X	-	-	-	-	-
42Cb0769	X	X	AD	-	-	-
42Cb0776	-	X	AD	X	-	-
42Cb0783	X	-	-	-	-	-
42Cb0787	X	X	-	-	-	-
42Cb0788	X	-	-	-	-	-
42Cb0789	X	-	-	-	-	-
42Cb0790	X	-	-	-	-	-
42Cb0791	X	-	AE	-	-	-
42Cb0792	X	-	-	-	-	-
42Cb0794	X	-	-	-	-	-
42Cb0795	X	X	AF, AD, RA	X	X	X
42Cb0796	X	-	-	-	-	-
42Cb0797	-	X	-	-	-	-
42Cb0798	X	-	-	-	-	-

Table 3: Rock Art Sites and Associated Features (continued)

Site No.	*Petroglyph*	*Pictograph*	*Other Features*	*Dateable Organics*	*Ceramic Artifacts*	*Lithic Artifacts*
42Cb0799	X	-	-	-	-	-
42Cb0804	X	-	RA/RS	-	-	-
42Cb0806	X	-	-	-	X	X
42Cb0807	X	-	-	-	-	-
42Cb0808	X	-	-	-	-	-
42Cb0809	X	-	-	-	-	-
42Cb0810	X	-	-	-	-	-
42Cb0811	X	-	-	-	X	X
42Cb0812	X	-	-	-	-	-
42Cb0813	X	-	-	-	-	-
42Cb0814	X	-	-	-	-	-
42Cb0815	X	-	-	X	X	-
42Cb0816	X	-	-	-	-	-
42Cb0817	X	-	-	-	-	-
42Cb0818	X	-	-	-	-	-
42Cb0819	X	-	-	-	-	-
42Cb0820	X	-	-	-	-	-
42Cb0821	X	-	-	-	-	-
42Cb0822	X	-	-	-	-	-
42Cb0823	X	-	-	-	-	-
42Cb0824	X	-	-	-	-	-
42Cb0825	X	-	-	-	-	-
42Cb0826	X	-	-	-	-	-
42Cb0827	X	-	-	-	-	-
42Cb0829	X	X	-	-	-	-
42Cb0830	X	-	-	X	X	X
42Cb0831	X	-	-	-	-	-
42Cb0832	X	-	-	-	-	-
42Cb0833	X	-	-	-	-	-
42Cb0834	X	-	-	-	-	-

Table 3: Rock Art Sites and Associated Features (continued)

Site No.	*Petroglyph*	*Pictograph*	*Other Features*	*Dateable Organics*	*Ceramic Artifacts*	*Lithic Artifacts*
42Cb0851	X	-	-	-	-	-
42Cb0854	X	-	-	-	-	-
42Cb0855	X	-	-	-	-	-
42Cb0856	X	-	-	-	-	-
42Cb0859	X	-	-	-	-	-
42Cb0863	X	-	-	-	-	-
42Cb0868	X	-	-	-	-	-
42Cb0870	X	X	-	-	-	-
42Cb0871	X	-	-	-	-	-
42Cb0872	-	X	-	-	-	-
42Cb0873	X	-	-	-	-	-
42Cb0874	X	X	-	-	-	-
42Cb0877	X	X	-	X	-	X
42Cb0878	X	-	-	-	-	X
42Cb0880	X	-	-	-	-	-
42Cb0881	X	-	-	-	-	-
42Cb0882	X	-	AE	-	X	-
42Cb0883	X	X	-	-	-	-
42Cb0884	X	-	-	-	-	-
42Cb0885	-	X	-	X	-	-
42Cb0886	X	X	-	-	-	-
42Cb0887	X	-	RM, MD			
42Cb0888	-	X	-	-	-	-
42Cb0889	X	-	BG, DE, RS	-	-	-
42Cb0891	X	-	AE, AF, RA, BG	-	X	-
42Cb0892	X	-	-	-	-	-
42Cb0894	X	-	-	-	-	-
42Cb0895	X	-	-	-	-	-
42Cb0896	-	X	-	-	-	-
42Cb0898	X	X	-	-	-	-

Table 3: Rock Art Sites and Associated Features (continued)

Site No.	*Petroglyph*	*Pictograph*	*Other Features*	*Dateable Organics*	*Ceramic Artifacts*	*Lithic Artifacts*
42Cb0899	X	X	-	-	-	-
42Cb0900	X	-	-	-	-	-
42Cb0901	X	-	-	-	-	-
42Cb0902	X	-	-	-	-	-
42Cb0904	X	-	-	-	-	-
42Cb0905	-	X	AD	-	-	-
42Cb0910	X	-	-	-	-	-
42Cb0911	X	-	-	-	-	-
42Cb0912	X	-	-	-	-	-
42Cb0914	-	X	-	-	-	-
42Cb0916	X	X	-	-	-	-
42Cb0917	X	-	-	-	-	-
42Cb0919	X	-	AE	-	X	-
42Cb0920	X	X	-	-	-	-
42Cb0922	X	-	-	-	-	-
42Cb0924	X	X	-	-	-	-
42Cb0955	X	-	-	-	-	-
42Cb0957	X	X	-	-	-	-
42Cb0958	X	-	-	-	-	-
42Cb0959	X	-	-	-	-	-
42Cb0960	X	-	-	-	-	-
42Cb0961	X	-	-	-	-	-
42Cb0962	X	-	-	-	-	-
42Cb0966	X	-	-	-	-	-
42Cb0967	X	X	RA	-	-	X
42Cb0969	X	-	RA	X	-	-
42Cb0970	X	-	-	-	-	-
42Cb0974	X	X	-	-	-	-
42Cb0975	X	-	-	-	-	-
42Cb0976	X	-	-	-	-	-

Table 3: Rock Art Sites and Associated Features (continued)

Site No.	*Petroglyph*	*Pictograph*	*Other Features*	*Dateable Organics*	*Ceramic Artifacts*	*Lithic Artifacts*
42Cb0978	X	-	-	-	-	-
42Cb0979	X	-	-	-	-	-
42Cb0980	X	-	-	-	-	-
42Cb0981	X	-	-	-	-	-
42Cb0982	X	-	-	-	-	-
42Cb0983	-	X	-	-	-	-
42Cb0984	X	-	-	-	-	-
42Cb0985	X	X	-	-	-	-
42Cb0986	X	-	-	-	-	-
42Cb0987	X	-	-	-	-	-
42Cb0988	X	X	-	-	-	-
42Cb0989	X	-	-	-	-	-
42Cb0994	X	-	-	-	-	-
42Cb1045	X	-	-	-	-	-
42Cb1046	X	-	-	-	-	-
42Cb1047	X	-	-	-	-	-
42Cb1050	X	-	AQ	-	-	-
42Cb1252	-	X	-	-	-	-
42Cb1379	X	X	-	-	-	-
42Cb1756	-	X	-	-	-	-
42Cb1758	-	X	-	-	-	-
42Cb2000	X	X	AD, AF, AP	X	X	X
42Cb2003	-	X	-	-	-	-
42Cb2005	X	X	BG	-	-	-
42Cb2006	X	-	-	-	-	-
42Cb2007	X	-	-	-	-	-
42Cb2008	X	X	-	-	-	X
42Cb2009	X	X	-	-	-	X
42Cb2010	X	-	-	-	-	-
42Cb2011	X	-	-	-	-	-

Table 3: Rock Art Sites and Associated Features (continued)

Site No.	*Petroglyph*	*Pictograph*	*Other Features*	*Dateable Organics*	*Ceramic Artifacts*	*Lithic Artifacts*
42Cb2019	X	-	-	-	-	-
42Cb2020	X	-	-	-	-	-
42Cb2021	X	X	-	-	-	-
42Cb2022	X	-	-	-	-	-
42Cb2023	X	-	-	-	-	-
42Cb2024	X	-	-	-	-	-
42Cb2025	X	-	-	-	-	-
42Cb2026	X	-	-	-	-	-
42Cb2027	X	-	-	-	-	-
42Cb2028	X	-	-	-	-	-
42Cb2029	X	-	-	-	-	-
42Cb2030	-	X	-	-	-	-
42Cb2033	X	-	-	-	-	-
42Cb2034	X	-	-	-	-	-
42Cb2036	X	-	-	-	-	-
42Cb2037	X	-	-	-	-	-
42Cb2038	X	-	-	-	-	-
42Cb2039	X	-	-	-	-	-
42Cb2040	X	-	-	-	-	-
42Cb2041	X	-	-	-	-	-
42Cb2042	X	-	-	-	-	-
42Cb2043	X	X	AD, AP, AQ, BG	X	X	X
42Cb2046	X	-	-	-	-	-
42Cb2047	X	-	AE	-	-	-
42Cb2057	X	-	-	-	-	-
42Cb2063	X	-	-	-	-	-
42Cb2064	-	X	-	-	-	-
42Cb2065	X	X	-	-	-	-
42Cb2066	X	-	-	-	-	-
42Cb2067	X	-	-	-	-	-

Table 3: Rock Art Sites and Associated Features (continued)

Site No.	*Petroglyph*	*Pictograph*	*Other Features*	*Dateable Organics*	*Ceramic Artifacts*	*Lithic Artifacts*
42Cb2089	-	X	-	-	-	-
42Cb2156	X	-	-	-	-	-
42Cb2191	-	X	-	-	-	-
42Cb2208	X	-	-	-	-	X
42Cb2211	X	X	-	-	-	-
42Cb2215	-	X	AD	-	-	-
42Cb2217	X	-	-	-	-	-
42Cb2218	-	X	RS	-	-	-
42Cb2231	-	X	-	-	-	-
42Dc0057	X	-	-	-	-	-
42Dc0059	X	-	-	-	-	-
42Dc0060	X	-	-	-	-	-
42Dc0061	X	-	-	-	-	-
42Dc0062	X	-	-	-	-	-
42Dc0063	X	-	-	-	-	-
42Dc0126	X	-	-	-	-	-
42Dc0127	X	-	-	-	-	-
42Dc0128	X	-	-	-	-	-
42Dc0129	X	-	-	-	-	-
42Dc0130	X	-	-	-	-	-
42Dc0131	X	-	-	-	-	-
42Dc0132	X	-	-	-	-	-
42Dc0133	X	-	-	-	-	-
42Dc0134	X	X	-	-	-	-
42Dc0135	X	-	-	-	-	-
42Dc0136	X	-	-	-	-	-
42Dc0137	X	-	-	-	-	-
42Dc0138	X	-	-	-	-	-
42Dc0139	X	-	-	-	-	-
42Dc0140	X	-	-	-	-	-

Table 3: Rock Art Sites and Associated Features (continued)

Site No.	*Petroglyph*	*Pictograph*	*Other Features*	*Dateable Organics*	*Ceramic Artifacts*	*Lithic Artifacts*
42Dc0141	X	-	-	-	-	-
42Dc0142	X	-	-	-	-	-
42Dc0143	X	-	-	-	-	-
42Dc0144	X	-	-	-	-	-
42Dc0145	X	-	-	-	-	-
42Dc0146	X	-	-	-	-	-
42Dc0147	X	-	-	-	-	-
42Dc0148	X	-	-	-	-	-
42Dc0149	X	-	-	-	-	-
42Dc0150	X	-	-	-	-	-
42Dc0151	X	-	-	-	-	-
42Dc0152	X	-	-	-	-	-
42Dc0153	X	-	-	-	-	-
42Dc0154	X	-	-	-	-	X
42Dc0155	X	-	-	-	-	-
42Dc0156	X	-	-	-	-	-
42Dc0157	X	-	AP	-	-	X
42Dc0158	X	-	-	-	-	-
42Dc0159	X	-	-	-	-	-
42Dc0160	X	-	-	-	-	-
42Dc0161	X	-	-	-	-	-
42Dc0162	X	-	-	-	-	-
42Dc0163	X	-	-	-	-	-
42Dc0164	X	-	-	-	-	-
42Dc0165	X	-	-	-	-	-
42Dc0166	X	-	-	-	-	-
42Dc0167	X	-	-	-	-	-
42Dc0168	X	-	-	-	-	-
42Dc0169	X	X	-	-	-	-
42Dc0170	X	-	-	-	-	-

Table 3: Rock Art Sites and Associated Features (continued)

Site No.	*Petroglyph*	*Pictograph*	*Other Features*	*Dateable Organics*	*Ceramic Artifacts*	*Lithic Artifacts*
42Dc0171	X	-	-	-	-	-
42Dc0172	X	-	-	-	-	-
42Dc0173	X	-	-	-	-	-
42Dc0174	X	-	-	-	-	-
42Dc0175	X	-	-	-	-	-
42Dc0176	X	-	-	-	-	-
42Dc0177	X	-	-	-	-	-
42Dc0178	X	-	-	-	-	-
42Dc0179	X	-	-	-	-	-
42Dc0180	X	-	-	-	-	-
42Dc0181	X	-	-	-	-	-
42Dc0182	X	-	-	-	-	-
42Dc0183	-	X	-	-	-	-
42Dc0184	X	X	-	-	-	-
42Dc0185	X	-	-	-	-	-
42Dc0186	X	X	-	-	-	-
42Dc0187	-	X	-	-	-	-
42Dc0188	X	-	-	-	-	-
42Dc0189	X	X	-	-	-	-
42Dc0190	X	-	-	-	-	-
42Dc0192	X	-	-	-	-	-
42Dc0193	X	-	-	-	-	-
42Dc0194	X	-	-	-	-	-
42Dc0195	X	-	-	-	-	-
42Dc0196	X	-	-	-	-	-
42Dc0197	X	-	-	-	-	-
42Dc0198	-	X	-	-	-	-
42Dc0199	X	-	-	-	-	-
42Dc0200	X	-	-	-	-	-
42Dc0201	-	X	-	-	-	-

Table 3: Rock Art Sites and Associated Features (continued)

Site No.	*Petroglyph*	*Pictograph*	*Other Features*	*Dateable Organics*	*Ceramic Artifacts*	*Lithic Artifacts*
42Dc0202	X	-	-	-	-	-
42Dc0203	X	X	-	-	-	-
42Dc0204	X	-	-	-	-	-
42Dc0205	X	-	-	-	-	-
42Dc0207	X	-	-	-	-	-
42Dc0208	X	-	-	-	-	-
42Dc0209	X	-	-	-	-	-
42Dc0210	X	-	-	-	-	-
42Dc0211	X	-	-	-	-	-
42Dc0212	X	-	-	-	-	-
42Dc0213	X	-	-	-	-	-
42Dc0214	X	-	-	-	-	-
42Dc0215	X	-	-	-	-	-
42Dc0217	-	X	-	-	-	-
42Dc0218	X	-	-	-	-	-
42Dc0219	X	-	-	-	-	-
42Dc0256	X	-	-	-	-	-
42Dc0257	X	-	-	-	-	-
42Dc0258	X	-	-	-	-	-
42Dc0306	X	-	-	-	-	-
42Dc0330	X	-	-	-	-	-
42Dc0331	X	-	-	-	-	-
42Dc0332	X	-	-	-	-	-
42Dc0333	X	-	-	-	-	-
42Dc0334	X	-	-	-	-	-
42Dc0335	X	-	-	-	-	-
42Dc0336	X	-	-	-	-	-
42Dc0337	X	-	-	-	-	-
42Dc0612	X	X	-	-	-	-
42Dc0613	X	X	-	-	-	-

Table 3: Rock Art Sites and Associated Features (continued)

Site No.	*Petroglyph*	*Pictograph*	*Other Features*	*Dateable Organics*	*Ceramic Artifacts*	*Lithic Artifacts*
42Dc0614	X	X	-	-	-	-
42Dc0617	X	-	-	-	-	-
42Dc0624	X	-	-	-	-	-
42Dc0625	X	-	-	-	-	-
42Dc0626	X	-	-	-	-	-
42Dc0628	X	-	-	-	-	-
42Dc0629	X	-	-	-	-	-
42Dc0630	X	-	-	-	-	-
42Dc0631	X	-	-	-	-	-
42Dc0632	X	-	-	-	-	-
42Dc0633	-	X	-	-	-	-
42Dc0634	X	-	-	-	-	-
42Dc0635	X	-	-	-	-	-
42Dc0639	X	-	-	-	-	-
42Dc0640	X	-	-	-	-	-
42Dc0641	X	-	-	-	-	-
42Dc0642	X	-	-	-	-	-
42Dc0643	X	X	-	-	-	-
42Dc0649	-	X	-	-	-	-
42Dc0650	-	X	AD	X	-	-
42Dc0652	-	X	AD	-	-	-
42Dc0653	X	X	AH, AD, AP, RA	X	X	X
42Dc0656	X	-	AE, AP	-	-	-
42Dc0657	X	-	-	-	-	-
42Dc0658	X	-	-	-	-	-
42Dc0659	X	-	AH, RA	-	X	X
42Dc0663	X	-	-	-	-	-
42Dc0666	X	-	AP, AE, AD	X	-	-
42Dc0669	X	X	-	-	-	-
42Dc0670	X	X	AE, AF, AP	X	-	-

Table 3: Rock Art Sites and Associated Features (continued)

Site No.	*Petroglyph*	*Pictograph*	*Other Features*	*Dateable Organics*	*Ceramic Artifacts*	*Lithic Artifacts*
42Dc0671	-	X	BG	-	-	-
42Dc0673	X	-	-	-	-	-
42Dc0674	X	-	-	-	-	-
42Dc0679	X	-	-	-	-	-
42Dc0694	-	X	-	-	-	-
42Dc0700	X	-	-	-	-	-
42Dc0702	X	-	AH, RA	-	-	-
42Dc0705	X	-	-	-	-	-
42Dc0706	X	-	-	-	-	-
42Dc0710	X	-	-	-	-	-
42Dc0714	-	X	-	-	-	-
42Dc0716	X	-	BG	-	-	-
42Dc0717	-	X	-	-	-	-
42Dc0719	X	-	-	-	-	-
42Dc0770	X	-	-	-	-	-
42Dc0895		-	-	-	-	-
42Dc1058	X	-	-	-	-	-
42Dc1059	X	-	-	-	-	-
42Dc1060	X	-	-	-	-	-
42Dc1061	X	-	-	-	-	-
42Dc1062	X	-	-	-	-	-
42Dc1063	X	-	-	-	-	-
42Dc1064	X	-	-	-	-	-
42Dc1065	X	-	-	-	-	-
42Dc1066	X	-	-	-	-	-
42Dc1067	X	-	-	-	-	-
42Dc1068	X	-	-	-	-	-
42Dc1069	X	-	-	-	-	-
42Dc1070	X	-	-	-	-	-
42Dc1071	X	-	-	-	-	-

Table 3: Rock Art Sites and Associated Features (continued)

Site No.	*Petroglyph*	*Pictograph*	*Other Features*	*Dateable Organics*	*Ceramic Artifacts*	*Lithic Artifacts*
42Dc1072	X	-	-	-	-	-
42Dc1073	X	-	-	-	-	-
42Dc1074	X	-	-	-	-	-
42Dc1075	X	-	AP	-	X	X
42Dc1077	X	-	RA, RS	-	-	-
42Dc1078	X	-	-	-	-	-
42Dc1081	X	-	-	-	-	-
42Dc1082	X	-	AP, RM	-	-	X
42Dc1084	X	X	-	-	-	-
42Dc1085	X	-	-	-	-	-
42Dc1086	X	-	-	-	-	-
42Dc1087	X	-	-	X	-	X
42Dc1089	X	-	-	-	-	X
42Dc1091	X	-	-	-	-	-
42Dc1092	X	-	-	-	-	-
42Dc1093	-	X	-	-	-	-
42Dc1094	X	-	-	-	-	-
42Dc1096	X	-	-	-	-	-
42Dc1097	X	-	-	-	-	-
42Dc1098	X	-	-	-	-	-
42Dc1099	X	-	-	-	-	-
42Dc1100	X	-	-	-	-	-
42Dc1102	X	-	-	-	-	-
42Dc1106	X	-	-	-	-	-
42Dc1107	X	X	-	-	-	-
42Dc1108	X	-	-	-	-	-
42Dc1109	X	-	-	-	-	-
42Dc1110	X	-	-	-	-	-
42Dc1111	X	X	-	-	-	-
42Dc1112	X	-	-	-	-	-

Table 3: Rock Art Sites and Associated Features (continued)

Site No.	*Petroglyph*	*Pictograph*	*Other Features*	*Dateable Organics*	*Ceramic Artifacts*	*Lithic Artifacts*
42Dc1113	X	-	-	-	-	-
42Dc1114	X	-	-	-	-	-
42Dc1302	X	-	BG	-	-	-
42Dc1616	X	-	-	-	-	-
42Dc1617	X	-	-	-	-	-
42Dc1619	X	-	-	-	-	-
42Dc1620	X	-	-	-	-	-
42Dc1639	X	-	-	-	-	-
42Dc1641	X	-	-	-	-	-
42Un1900	X	-	AE	-	-	-
42Un1901	X	-	-	-	-	-
42Un1902	X	-	-	-	-	-
42Un1903	X	-	-	-	-	-
42Un1904	-	X	-	-	-	-
42Un1905	X	-	-	-	-	-
42Un1906	X	X	-	-	-	-
42Un1907	X	-	-	-	-	-
42Un1909	X	-	-	-	-	-
42Un1910	X	-	-	-	-	-
42Un1912	-	X	-	-	-	-
42Un1915	X	X	-	X	-	-
42Un1917	-	X	-	-	-	-
42Un1925	X	-	-	-	-	-

Note: Abbreviations follow Intermountain Antiquities Computer System codes, revised June 1992. AD is granary, AE is storage cist, AH is pithouse, AP is single-room structure, AQ is multi-room structure, RM is rubble mound, RS is rockshelter, BG is wall, RA is rock alignment, DE is depression, DS is stone circle with a depression.

Northwestern Plains Styles

Dinwoody Tradition Gebhard and Chan (1950) described a distinctive type of rock art in the area around Dinwoody Canyon in western Wyoming that became generally known as Dinwoody Tradition. The images emphasize extraordinarily abstract and supernatural anthropomorphic forms, commonly in outline form with complex, sometimes elaborate, body decorations consisting of patterns of horizontal and vertical lines and geometric designs. Occasionally, abstract forms exist that generally resemble humans, although some appear to represent birds. The anthropomorphs frequently are associated with wavy lines, groups of circles and dot

patterns. Another characteristic feature of the images is that they have short stubby arms and legs, and the heads sit directly on the shoulders of a generally rectangular body with rounded corners. Gebhard later defined three general styles: the Early Hunting Style (Style 1), the Interior Line Style (Style 2) and the Plains or Late Hunting Style (Style 3). Gebhard (1969:16) stated that the Interior Line Style "…is the predominant style at Dinwoody and gives the area its distinctive quality;" it is also found in NMC.

James D. Keyser and Michael A. Klassen (2001:107) have argued that superposition, differential weathering, dated archaeological deposits, portrayal of dateable objects and rock varnish dating all support a beginning date of 1000 B.C. and an ending date of A.D. 1775. Cole (1990) later extended the spatial distribution southward along the Green River beyond NMC. She argued the style dated from before A.D. 1 and lasted through at least A.D. 1000. In Wyoming, Dinwoody Tradition images are considered a part of the Shoshone tribal heritage.

Two Interior Line Style panels at 42Cb1045 in NMC are unmistakable examples of the Dinwoody Tradition (Photo 30), and they may date to Late Archaic or early Formative times. Each of the panels appears on an adjacent horizontal section of a broken cliff face. One large anthropomorph is rectangular with rounded corners and arms extending outward from the sides of the body in an upraised position. Fingers and toes are long and spindly. On top of the head is a row of vertical lines. There are two small associated anthropomorphs and two mountain sheep. To the left of the anthropomorph is a wavy line that surrounds an abstract image. Keiser and Klassen (2001:107) note that wavy lines frequently are associated with Dinwoody Tradition images, as they are in this NMC panel. The second Dinwoody panel to the left of the first is a tall, narrow image that has feet with long, narrow toes and horizontal lines near the top that seem to illustrate fingers.

These two panels provide relative dating information. Panel 1 contains two well-executed Fremont anthropomorphs that are typical of NMC, and Panel 2 contains mountain sheep and rows of dots that are also indicative of Fremont panels. In Panel 1, one Fremont anthropomorph has arms superimposed over the Dinwoody image. In Panel 2, the mountain sheep and the horizontal rows of dots are superimposed over the Dinwoody image. The superimposition in both instances indicates the Dinwoody images were created earlier. The slight difference in repatination between the Dinwoody and Fremont figures suggests these panels were executed slightly before the Fremont florescence in NMC from A.D. 900 to 1300.

Shield-Bearing Warrior Style Keyser (1977, 1984, 1987) also described a Shield-Bearing Warrior Style, which he ascribes to this time period in the northwestern Plains, Uinta Basin and northwestern Colorado. This style is believed by some to be associated with vision quests, puberty rites, warfare and shamanism. Art forms are rigid and feature individualistic images that include shield-bearing warriors, V-necked humans, boat-form animals and vulva forms. These petroglyphs "usually occur as small groups of human and animal figures shown in stiff, symbolic postures and stylized relationships. Yet, these glyphs are well made, with firm, bold incisions, creating carefully designed motifs. The result is an individualistic, highly stylized, static, well-executed art form that apparently functions in a magico-religious context" (Keyser 1984:28).

This style is considered typical of Protohistoric Shoshone peoples on the Plains, but it is generally not associated with the Ute (Cole 1990:215). Shield-Bearing Warrior motifs are relatively common throughout the Tavaputs Plateau, although only a few are known in NMC (Photo 31). Boat-shaped animal motifs are also present in NMC, but they also are uncommon. Shield figures are relatively common in nearby Range Creek Canyon, and it is a common motif in late Anasazi contexts throughout the Canyonlands region of the Colorado River and as far west as Las Vegas. In fact, the image appears to have broad regional significance to various prehistoric groups over broad temporal ranges.

Northern Colorado Plateau

On the northern Colorado Plateau, rock art studies initially identified styles with cultural affinity to the Anasazi of the Four Corners. For example, in 1931 Reagan (1933:6) described the rock art of the NMC region as Anasazi Basketmaker and Puebloan, citing panels of, "men carrying the image of the horned snake, kachina scenes and women with whorled hair as Hopi virgins wear their hair at the present time." Furthermore, Reagan described panels in NMC purportedly depicting Puebloan ceremonial scenes with masked participants (1935:707-708), horned or plumed serpents (1937:8) and domesticated turkeys (1933:6). Morss (1931:34) was the first to recognize the distinctive qualities of Fremont rock art, noting it is "among its most interesting antiquities," and at the same time "… present some of the most difficult problems." Most rock art panels in NMC can be described within the context of styles defined elsewhere on the Colorado Plateau.

In 1963, Christy Turner organized the rock art in the Glen Canyon region into five styles based on several criteria. While some of Turner's categories have to some extent been refined, renamed and reordered by others, it remains the only comprehensive work that takes into account artifact association, image type, pottery-petroglyph parallels, manufacturing techniques, patination, superimposition and geological information. Turner's Glen Canyon Style 4 and Style 5 are applicable to this discussion.

Glen Canyon Style 4 Turner (1963:12) initially believed this style to have been produced from about A.D. 1050 to 1250 by the Kayenta Anasazi during Pueblo II/Pueblo III times. Turner noted the subject matter is so variable, compared to the other four styles described, and the pecking technique so well executed that this style could be easily recognized. Style 4 diagnostic designs include birds, flute players, hunting scenes, anthropomorphs with enlarged appendages and genitals, bird-bodied and open mouthed cloven sheep, concentric circles, watch spring scrolls and triangular-bodied anthropomorphs with headdresses.

Many of the images described within the context of Glen Canyon Style 4, and to some extent Glen Canyon Style 5, have since been redefined as Anasazi Basketmaker, with a suspected temporal range of about A.D. 1 to 750. Basketmaker anthropomorphs characteristically have an elongated triangular body, a long narrow neck, a small head and sometimes an arc over the head. The arms are represented by a single line, and the hands and feet usually have three or four fingers and toes. Basketmaker images were generally created with a uniform and fine pecking technique exemplified in the sharpness of the fine lines. These images must have been created by indirect percussion (a hammer and chisel), because the dint pattern is more precise, uniform and smaller than

the Fremont hammerstone method. The uniform depth and evenness of the dinting suggest the images were the work of practiced artisans.

At least one unrecorded NMC site is clearly executed in the Anasazi Basketmaker style described above (Photo 32). It has the triangular body, small head and fine lines, and it exhibits a level of patination that is greater than nearby Fremont panels, suggesting that it predated the Fremont presence here. Furthermore, this panel was created with the same pecking technique described by Turner (1963:50) for Glen Canyon Style 4 in that "…the pecking technique [is] so well executed that this style is easily recognized." Researchers have described Basketmaker elements at several other sites in the canyon. For example, Gillin (1938:22) described the Sheep Canyon pictograph panel (Photo 29) as representing "a Basketmaker type."

Glen Canyon Style 5 Assumed to have been created prior the advent of ceramics, it consists almost exclusively of rectilinear outline forms, occasionally filled with parallel or vertical lines, or with combinations of the two. There was an emphasis on rectilinear shapes, and many figures were created with deeply incised, broad straight lines. The anthropomorphs of Style 5 sometimes have very large elongated bodies that are occasionally filled with the horizontal and vertical line pattern. Arms and legs are minor features, usually being a single line. Anthropomorphs occasionally are depicted holding hunting shafts, and there is an emphasis on sheep. These sheep also often have exceptionally large rectangular bodies with disproportionately small heads, tails and legs, but with the same interior lines. Turner (1963:7) later acknowledged the similarity of Style 5 to split-twig figurines dated to about 2000 B.C. and the apparent occurrence of Style 5 throughout most of western North America. He extended the beginning of rock art in Glen Canyon to 2,000 to 6,000 B.C., suggesting these images constituted "… the best candidates for the earliest rock art in the New World."

One panel at 42Dc169 in middle NMC contains the remains of a Glen Canyon Style 5 quadruped (Photo 33). Unfortunately, because of its age, much of the image has been lost to erosion. The body is shown by the vertical and horizontal lines that are the defining characteristic of Glen Canyon Style 5 animals. Also visible are two back legs, slanted at an angle. The front of the animal, including the head, is not present. This panel is particularly significant because it also contains a Fremont anthropomorph and a Ute representation of a dog, each exhibiting different levels of repatination. It is obvious that the Glen Canyon Style 5 quadruped is more repatinated than the Fremont anthropomorph, which is more repatinated that the dog. Hurst and Louthan (1979:11-14) also identified a Glen Canyon Style 5 panel at 42Dc211.

Attempts to define Fremont rock art north of the Colorado has proven problematic throughout time. Polly Schaafsma (1971) addressed that problem in a 1971 monograph where she recognized regional differences in Fremont rock art that corresponded to regional variants suggested by Fremont researchers in the 1960s. Schaafsma's data came largely from photographs taken decades before by others. Information on patination levels, construction techniques, associated dateable artifacts, site context and geology was not available, and even the scale of the figures was unknown (Schaafsma 1980).

Schaafsma's classification scheme was based on "general appearance and on the basis of an intuitive evaluation of the elements present," along with "aesthetic qualities." In addition to these features, she tabulated the frequency of occurrence of various elements. She grouped the photographs according to geographic distributions and found they closely corresponded to Ambler's (1966:273) delineation for the Vernal Fremont and the Northern and Southern San Rafael sections. Schaafsma assigned a new nomenclature, but retained the geographic distinctions. Relevant to this discussion are her Classic Vernal Style and Northern San Rafael Style.

Classic Vernal Style Found throughout the Uinta Basin in northeastern Utah, Schaafsma considered it to "embrace the most advanced expression of Fremont petroglyphic art." She noted the panels are composed of grand human figures with broad shoulders, trapezoidal bodies and simple large, round, rectangular or bucket heads. Many had outlined bodies, and hands were often missing and the feet exaggerated. The images often exhibit elaborate decorative detail. Heads have facial designs and headdresses, the ears have pendants, and the figures often have ornate necklaces. Additionally, "Small anthropomorphic figures, quadrupeds, and abstract designs are often found in the panels with the large dominating anthropomorph."

Despite the proximity of NMC to the Uinta Basin, there is a paucity of Classic Vernal Style images. One NMC site contains two eroded anthropomorphs, one of which is clearly Classic Vernal Style (Photo 34). It features a necklace, a small breastplate and a round object held in the hand. This image was likely created first by painting, and then features were added by pecking and abrading away the pigment along with the surface of the rock. This created a highly contrasting and three-dimensional image. On top of the head, there appear to be row of short vertical marks that contain remnants of red pigment. Two other sites (described later) could also be evidence of the Classic Vernal Style.

Northern San Rafael Style Schaafsma defined the Northern San Rafael Style in the area just south of the Uinta Basin, including the Tavaputs Plateau. Schaafsma (1971:28-29) observed that sites in this area "exhibit a stylistic phase of Fremont rock art which is internally consistent and distinct" from areas around it. She noted that the area lacks the large well-executed, highly-decorated anthropomorphs. Instead of the "pleasing visual patterns" present in the Classic Vernal Style both large and small panels are "crowded and busy, with a wealth of small solidly pecked figures that are carelessly executed and ill defined." The Northern San Rafael Style stands in stark contrast to the large, elaborate image of the Classic Vernal Style, and there appears to be no stylistic relationship between the two stylistic expressions.

The vast majority of NMC sites that can be confidently assigned by style are considered to be Northern San Rafael Style (Photo 35). But the Fremont rock art so dominant in NMC is very diverse, and Schaafsma's definition is clearly inadequate. Undoubtedly, NMC was occupied for hundreds of years, during which time various people created numerous images on cliff surfaces for a variety of reasons. Some images were created by visitors from outside the region, whereas some were developed locally. Consequently, a single classification for all Fremont rock art in the region belies the variability and complexity found in the rock art here. A total of 226 sites with rock art have been identified as having Fremont elements, either in the style of rock art or through association with Fremont architecture or material culture remains.

Barrier Canyon Style Schaafsma (1971:69) described what she believed to be an Archaic rock art style in the San Rafael Fremont region in which "life size paintings are dominant, but which are stylistically distinct from the Fremont tradition." She named these paintings the Barrier Canyon Style, after the tributary where a large number of the panels are located. "The dominant motif in these paintings is the long, dark form of the human torso…. These highly abstracted and mummy-like anthropomorphs which seem to hover against the cliff walls determine the overall aesthetic impact of the Barrier Canyon Style, not only because of their repeated occurrence in each site, but also because of their great size in comparison with the few other elements occurring with them which are often tiny adjuncts to the major anthropomorph theme."

Conclusive evidence of Barrier Canyon Style images has not been documented in NMC, although it is expected they will be found. The Tavaputs Plateau lies within the spatial range of Barrier Canyon images, and Range Creek Canyon, which neighbors Nine Mile to the south, has several Barrier Canyon panels. Some NMC sites have been tenuously identified as having Barrier Canyon characteristics. For example, the Sheep Canyon Pictograph (Photo 29) has classic elements of Barrier Canyon Style, as well as Fremont elements. Montgomery and Montgomery (1999) identified Barrier Canyon elements at 42Cb1279, better known as First Canyon Site, and Spangler (1993) identified one panel at 42Dc717 in lower NMC with Barrier Canyon-like elements.

Western Colorado

Indigenous rock art attributed to ancestral Utes has also been the focus of scholarly attention. William G. Buckles defined two styles of rock art in western Colorado, an Early Historic Ute, which dates from the time the Utes acquired the horse, from about A.D. 1640 to 1830, and the Late Historic Ute, from about A.D. 1830 to 1880, when the Utes were removed from the region. Ute rock art contains both pictographs and petroglyphs, with solid pecking predominating, although stipple-pecked, grooved and lightly abraded techniques existed. Most often the pictographs are painted in red pigment, although yellow, orange and black also were also used (Buckles 1971).

Much historic Ute rock art is recognizable because it depicts historic objects (Photo 36), including horses with and without riders, tepees, guns, trains, automobiles and period costumes. What constitutes prehistoric Ute rock is more difficult to ascertain. Cole (1988, 1990), who has described at least four different styles attributed to post-A.D. 1300 occupations, has observed that most historic rock art in eastern Utah and western Colorado is of Ute origin, and that there is some evidence of stylistic and cultural continuity between prehistoric and historic art. However, there is a distinct possibility that Utes prior to A.D. 1600 rarely executed rock art panels. "That is, Colorado Plateau Utes may have begun making rock art in response to prehistoric rock art or as the result of influences from Fremont and/or Plateau-Plains cultures" (Cole 1988:115).

Ute rock art is found at 30 sites in NMC, second only to Fremont figures. The most obvious identifying factor is the depiction of horses, often associated with hunting scenes (Photo 37), an indication of the Ute transition to equestrian lifeways after the introduction of horses to New Mexico in 1597. It is likely that the Utes obtained knowledge of the horse by about 1637 (Forbes 1959:200).

There are distinctive differences in pecking techniques between Ute and Fremont panels. With Ute panels, the body of an animal was created with a solid outline, and then the pecking was widened to create a broader line. The heads were completely pecked, as were the legs. In addition, there was some random pecking on the interior of the body. In one case, the inside of the wide outline was pecked to create a gradient effect from the solid pecking to no pecking (Photo 38). Another distinctive characteristic of these Ute images is that they are stylized, and there is little or no repatination of the cliff surface.

Not all panels of suspected Ute affiliation are easily identifiable by the depiction of horses. The Owl Panel (Photo 39) contains owls, a bear and a bear track, all images similar to Ute panels elsewhere in Utah and Colorado, but without identifying historic features. This panel exhibits images with heavy outlines and interior gradient pecking common elsewhere in NMC at sites depicting horses. An examination of many suspected Ute panels in Nile Mile suggests that horses are not the primary indicator of Ute rock art. Rather, it is the stylized types of mountain sheep, buffalo and elk.

Miscellaneous Styles

Much of the rock art of the region does not conform to established categories. Nevertheless, researchers have observed stylistic patterns that repeat themselves across broad geographic regions. It is debatable whether these patterns warrant the designation of additional styles or categories, or whether the patterns observed are actually subsets of already-defined styles in the same area. For example, scratched images are found throughout the western United States, including NMC. These images are created with the edge of a sharp implement, like the edge of a freshly broken flake of chert or chalcedony. Only one pass was used to create each line. The scratched images, therefore, are usually not deep and, as a result, they are often overlooked.

Scratched Images The first published reference to scratched lines forming a style was by Heizer and Baumhoff (1962:208), who noted that elements of what they labeled the "Great Basin Scratched Style" consisted of straight lines, sun figures and crosshatching. These elements were generally superimposed over other petroglyphs, suggesting that they were of recent manufacture. Turner (1971) found scratched images in Glen Canyon and he also attributed these to later occupations. He also found scratched images as stand-alone figures, often consisting of grids and crosshatching. And Christensen (1992) reported on scratched images in Arizona where scratch lines appear to have been done prior to the completion of a figure, either in an effort to roughly lay out the scale of the image or panel, or as "vandalism" to an image.

These images have been observed in several panels in eastern Utah, especially in the Canyonlands area. Scratching exists both as apparent precursors to images and as defacement over pecked or painted images. Scratched figures also exist as individual images, which are generally cross-hatched or parallel-line patterns. Some of these images are quite complex. Some of the figures are small and delicate, where others are nearly a meter in size. An unrecorded and quite elaborate scratched-style panel (Photo 40) was recently observed during a reconnaissance in lower NMC.

Fugitive pigment Steven J. Manning recently defined a fugitive pigment anthropomorphic style that is found throughout eastern Utah, including NMC. These images were created by applying pigments to large vertical stone surfaces, usually cliff faces or rockshelter interiors. Specific features were then added by pecking or abrading away the pigment. Sometimes the pigment was removed from edges of the figure. When the remaining pigment eroded, only the pecked or abraded features remained. The pecked features usually consist of facial features, beltlines, hair ornamentation, headdresses and necklaces, most of which vary from simple to ornate. One feature almost always present is a single, large-pendant necklace. Even though the pigment is gone, the form of these images is evident (Manning 2003).

These anthropomorphs occur in both the Anasazi and Fremont areas, and they constitute a minor component of Schaafsma's Classic Vernal Style, Northern and Southern San Rafael Styles, and the San Juan Anthropomorphic Style, as well as Cole's Abajo-LaSal Style. A developmental sequence, established through superimposition, variation in repatination levels and increasing size and complexity, was shown to occur consistently over all areas where the images exist. This suggests that the images had shared the meaning, function and nuances of construction over time. The images apparently came into existence at the end of the Archaic period and ceased to be made at the time the Fremont culture ended (Manning 2003).

At least two sites with fugitive pigment anthropomorphs are found in NMC. They are directly opposite one another, which is characteristic of similar images in southeastern Utah. All that remains at these sites are the features that were created by pecking away the pigment after the anthropomorphs were initially painted. At one site, there appears to be two anthropomorphs on the left side of a panel, one above the other (Photo 41). The image at the top consists of a single-pendant necklace, a pecked-out face, a broad line on top of the head, and arms and hands. Beneath this image there appears to be a smaller anthropomorph that overlaps the lower portion of the larger figure. This second figure apparently consists of a crudely pecked-out face with a small necklace below it. Below this necklace there appears to be a "fringed skirt." On the opposite side of the canyon is another fugitive pigment anthropomorph with a similar large pendant necklace. Above the necklace, there appears to be a slightly downward curving mouth and two eyes. The necklace of this figure appears to be superimposed over the face of another figure. Below this are a horizontal line and a "skirt" similar to that on the image across the canyon.

A previously undefined Archaic style is also evident in lower NMC at 42Un1901 (Photo 42). This extremely patinated petroglyph panel features large rectangular bodies pecked in outline and with small, solidly pecked round heads. However, unlike Interior Line Style figures, it had no interior decorations. Associated with the patinated figures were two panels of Fremont trapezoids, which do not exhibit repatination. The repatination on the suspected Archaic panel is virtually complete with the pecked portions now exhibiting the same mineralization as the surrounding surface. Given the relative lack of repatination of the Fremont figures, estimated to be about 1,000 years old, this Archaic panel could be several thousand years old (Spangler 1993).

Site Types Associated with West Tavaputs Adaptation

Open Site

Wild plant and animal acquisition by mobile groups of hunters and foragers was likely an economic pursuit by all individuals during all periods of time. These activities certainly involved hunting and gathering ranges much greater than the NMC corridor, and it certainly involved the movement of people in response to the availability of wild foods. It is also certain that in a water-stressed environment like the Tavaputs Plateau that a permanent water source like Nine Mile Creek would have nurtured a variety of economic plants and animals, and consequently hunting and gathering activities would have been prevalent along the canyon corridor. There is considerable evidence of hunting depicted in the rock art of the NMC, but there are no obvious images of gathering activities.

There are important remnants of hunting and gathering activities in the NMC, although they are subtle, poorly documented and largely obscured by the large and impressive architectural and rock art sites. Food procurement and processing sites, both at sheltered and open sites, are a significant part of human adaptations in the region, but these temporary sites typically reveal very little surface evidence of how people exploited their local environment. Some **lithic scatters** have been documented where waste flakes remain the only evidence of tool maintenance, perhaps by a single hunter during a single episode. And there are **foraging camps** where a full range of domestic activities occurred within the context of a social unit of 10 to 25 people. These sites are evidenced by groundstone and chipped-stone tools, ceramics, basketry, beads, burned bones, charcoal and other remains. Open sites with lithic, organic and/or ceramic evidence, but without architectural features indicative of longer-term occupations, are summarized in Table 4.

The database indicates that at least 55 sites within the NMC meet the criteria as open sites with associated organic materials, potsherds and/or lithic artifacts, but without associated architecture. Hearths or concentrations of burned stone were identified at nine of these sites, and depressions were noted at five others. Ephemeral alignments of stones were observed at four sites, although it is possible these are remnants of eroded structures. Generally, hearths, middens, depressions and alignments that can be associated with longer-term encampments were noted at 38 percent of the open sites. Chipped-stone or groundstone artifacts were identified at 32 open sites (57 percent), although in most cases these consisted of nondiagnostic lithic debitage. These data suggest tool manufacturing and maintenance were a dominant activity at temporary sites. By comparison, only 14 temporary sites (25 percent) yielded ceramics indicative of larger-group and gender-diverse activities. Some 28 sites (50 percent) contained dateable organic materials (typically charcoal) that could potentially produce materials suitable for radiocarbon analyses.

The association of ephemeral open sites to nearby rock art panels is problematic. Because of the temporary nature of the occupation and the paucity of corroborating data, there is no convincing evidence that the temporary occupations evidenced by scatters of artifacts occurred before or after the rock art image was produced. This concern is particularly valid at sites that appear to have been reoccupied repeatedly over time, or

at those rock art sites where there is evidence of multiple styles indicating re-use of the cliff face over a broad temporal range. If it can be assumed that mobile hunting and gathering afforded little surplus time for the production of rock art images, then rock art should be rare at temporary sites, becoming more common with longer-term occupancies. Rock art panels are associated with 26 open sites (46 percent) identified as such in the database. However, it appears that rock art sites are less likely to be associated with open lithic scatters (e.g., ephemeral hunting/tool maintenance sites), where only two of 12 sites also had associated rock art. By comparison, six out of 14 sites that had ceramics also had associated rock art. Ceramics are generally associated with bi-gender activities, and if the association is valid the rock art could have been produced during the course of longer-term encampments by larger groups of individuals.

However, it is emphasized that there are inconsistencies between the material culture record and various rock art styles. This was particularly evident at 42Cb1279, or First Canyon Site (Photo 43). Researchers documented 21 separate rock art panels here that were indicative of different groups from Archaic through historic times. Among the rock art styles were Barrier Canyon, Northern San Rafael Fremont and Early Historic Ute. However, the shallow subsurface deposits adjacent to the panels indicated only a single ancestral Ute occupation dating to the A.D. 1600s (Montgomery and Montgomery 1999). There was no evidence the site had been occupied by earlier groups, despite the earlier rock art styles.

Investigations into First Canyon Site nonetheless constitute the best evidence to date of hunting encampments within NMC. Lithic and faunal evidence suggests that ancestral Ute hunting parties brought carcasses back to the site for preparation and cooking. Groundstone was not observed, and there was minimal evidence of plant processing or procurement. Among the artifacts recovered were Desert side-notched points, lithic tools, worked bone fragments and mammal and bird bones. Charcoal from Test Unit 3 produced a radiocarbon date of 260 $\pm$50 B.P. (A.D. 1648 calibrated), a date considered consistent with the Desert side-notched points (Montgomery and Montgomery 1999:59). One point tested positive for bison and deer blood (1999:68).

Rockshelters

More convincing evidence of hunting and foraging activities has been preserved in dry **rockshelters** found throughout NMC (see Table 5), although these commonly have shallow deposits. These shelters have suffered from the cumulative effects of more than a century of illegal looting and uncontrolled excavations, but many still contain evidence of subsistence and residential activities throughout all periods of time. Some also contain burials, figurines, food remains, rock art panels, storage cists and bedrock grinding slicks (Photo 44). And yet others contain architectural features, either granaries or residential structures that are indicative of more sedentary lifeways associated with agricultural production and storage. More importantly, many sites identified as rockshelter sites in the database also contain organic materials that could produce chronometric data. Unfortunately, none of these rockshelter occupations have been systematically investigated using modern archaeological methods and theories, and most data discussed here are derived from surface observations or excavations conducted more than a half century ago.

Table 4: Open Sites: No Associated Architecture
Encampments, Artifact Scatters and Special Use Sites

Site No.	*Associated Features*	*Rock Art*	*Dateable Organics*	*Ceramic Artifacts*	*Lithic Artifacts*	*Cultural Affiliation*
42Cb0038	-	PI	X	-	-	FR
42Cb0053	-	PE	X	-	-	-
42Cb0138	-	PE	X	X	-	FR
42Cb0141	-	PE	X	-	-	FR, BM
42Cb0257	-	-	-	X	X	
42Cb0258	-	-	-	-	X	FR
42Cb0407	-	-	-	-	X	
42Cb0615	DE	-	-	X	X	FR
42Cb0647	-	PE, PI	-	X	-	UT
42Cb0658	RA	PE	X	-	-	FR
42Cb0684	-	PE	X	-	-	FR
42Cb0698	DE	PE	X	-	X	FR
42Cb0710	DE	-	X	X	X	FR
42Cb0712	DE	PE	X	-	-	FR
42Cb0720	-	-	X	-	-	-
42Cb0759	-	PE	-	-	X	-
42Cb0801	HE, BS	-	X	-	X	-
42Cb0802	-	-	-	X	-	-
42Cb0806	-	PE	-	X	X	FR
42Cb0811	-	PE	-	X	X	FR
42Cb0815	-	PE	X	X	-	FR
42Cb0830	-	PE	X	X	X	FR
42Cb0877	-	PE,PI	X	-	X	-
42Cb0878	-	PE	-	-	X	-
42Cb0885	-	PI	X	-	-	-
42Cb0908	BS	-	X	-	X	-

Table 4: Open Sites: No Associated Architecture
Encampments, Artifact Scatters and Special Use Sites (continued)

Site No.	*Associated Features*	*Rock Art*	*Dateable Organics*	*Ceramic Artifacts*	*Lithic Artifacts*	*Cultural Affiliation*
42Cb0915	-	-	X	X	X	-
42Cb0969	RA	PE	X	-	-	-
42Cb0973	RA, BS, MD	-	X	-	X	-
42Cb1279	HE	PE, PI	X	-	X	UT, FR, AR
42Cb1864	-	-	-	-	X	-
42Cb2008	-	PE, PI	-	-	X	-
42Cb2009	-	PE, PI	-	-	X	-
42Cb2045	HE	-	X	-	-	-
42Cb2074	-	-	-	-	X	-
42Cb2076	-	-	-	-	X	-
42Cb2192	RA	-	X	-	-	-
42Cb2204	-	-	-	-	X	-
42Cb2230	HE	-	-	-	-	-
42Dc0154	-	PE	-	-	X	FR, AR
42Dc0530	-	-	-	-	X	-
42Dc0616	HE	-	-	-	-	-
42Dc0618	MD	-	-	X	X	FR
42Dc0682	HE	-	-	-	-	FR
42Dc769	RA, HE, BS	-	-	-	X	FR
42Dc1083	MD	-	-	X	X	FR
42Dc1084	BS	PE, PI	-	-	-	-
42Dc1087	-	PE	X	-	X	-
42Dc1088	MD	-	-	-	-	-
42Dc1089	BS	PE	-	-	X	-
42Dc1668	HE	-	X	-	-	-
42Un1915	BS	PE, PI	X	-	-	FR
42Un1919	-	-	X	-	-	

Note: Abbreviations follow Intermountain Antiquities Computer codes. RA is rock alignment, DE is depression, HE is hearth, MD is midden, BS is burned stone, PE is petroglyph, PI is pictograph, FR is Fremont, AR is Archaic, BM is Basketmaker, UT is Ute.

Table 5: Rockshelter Sites

Site No.	*Constructed Features*	*Other Features*	*Rock Art*	*Dateable Organics*	*Ceramic Artifacts*	*Lithic Artifacts*	*Cultural Affiliation*
42Cb0014	-	-	PE, PI	-	-	-	-
42Cb0016	-	BU	PE, PI	X	X	X	FR, AR, UT
42Cb0018			PE	-	-	-	-
42Cb0046	AD	-	-	X	-	-	FR
42Cb0051	-	-	-	X	-	-	FR
42Cb0264	-	-	PE	-	-	-	-
42Cb0313	-	-	PE	X	-	-	-
42Cb0674	-	-	PE	-	-	-	-
42Cb0692	-	-	PE	X	-	-	FR
42Cb0701	-	-	PE	X	-	-	-
42Cb0711	-	DE (2)	PE	X	-	-	FR
42Cb0728	AP	-	-	-	-	-	-
42Cb0729	AP	-	-	X	-	-	-
42Cb0749	AP	-	-	X	-	-	-
42Cb0757	-	RA	PE	X	-	X	-
42Cb0761	RM	-	-	-	-	-	-
42Cb0771	BG	-	-	X	X	-	FR
42Cb0772	BG	-	-	X	X	-	FR
42Cb0773	BG	-	-	X	X	-	FR
42Cb0779	AE	-	-	-	-	-	UT
42Cb0803	-	DE	-	-	-	-	-
42Cb0804	-	RA	PE	-	-	-	-
42Cb0852	AO	-	-	X	X	X	FR
42Cb0857	AO	RA	-	X	X	X	
42Cb0858	AO	RA	-	-	-	-	-
42Cb0860	AO	RA	-	X	-	X	-
42Cb0889	BG	DE	PE	-	-	-	-
42Cb0890	-	-	-	X	-	X	-
42Cb0909	RM	-	-	-	-	X	-
42Cb0918	-	-	-	-	-	-	-
42Cb0967	-	RA	PE, PI	-	-	X	-

Table 5: Rockshelter Sites (continued)

Site No.	*Constructed Features*	*Other Features*	*Rock Art*	*Dateable Organics*	*Ceramic Artifacts*	*Lithic Artifacts*	*Cultural Affiliation*
42Cb0968	SC	-	-	-	-	-	-
42Cb1757	AP	-	-	X	-	-	FR
42Cb2068	-	-	-	-	-	X	-
42Cb2070	BG	-	-	-	-	-	FR
42Cb2168	-	-	-	-	-	-	-
42Cb2170	-	RA	-	-	-	-	-
42Cb2172	-	RA	-	-	-	-	-
42Cb2173	AP	HE	-	-	-	-	-
42Cb2218	-	-	PI	-	-	-	-
42Cb2228	-	HE	-	-	-	-	-
42Cb2229	BG	-	-	-	-	-	FR
42Dc0610	-	RA	-	-	-	-	-
42Dc0660	BG	-	-	-	-	-	-
42Dc0683	-	-	-	X	-	-	-
42Dc0703	-	-	-	X	-	-	-
42Dc1075	AP	-	PE	-	X	X	FR
42Dc1077	-	RA	PE	-	-	-	-
42Dc1080	-	RA, DE	-	-	-	-	FR

Note: Abbreviations follow Intermountain Antiquities Computer System Codes. AP is single-room structure, AO is other structure, RM is rubble mound, BG is wall, SC is stone circle, RA is rock alignment, DE is depression, HE is hearth, PE is petroglyph, PI is pictograph, FR is Fremont, UT is Ute, AR is Archaic, BU is burial.

Rockshelter sites generally exhibit evidence a broader range of activities than is typically found at open sites, although this may be attributable to better preservation. Of the 49 rockshelter sites identified in NMC, 24 contained artifacts indicative of human activities, including lithics (n=10), ceramics (n=7) and organic artifacts (n=20). Shelters also exhibit evidence of constructed features. Of 49 rockshelter sites in the database, 22 had specifically constructed features like single-room structures, walls, rubble mounds or unknown structures, and another eight sites had rock alignments that could be remnants of constructed features. Although the sample size is small, it appears longer-term utilization of rockshelters corresponded with the construction of rock art images, although this may also be a function that shelters provide better protection of the images from natural erosion. Sixteen rockshelter sites (33 percent) had rock art images.

It should be noted that most rockshelters investigated in the early and mid nineteenth century revealed shallow deposits. One exception is 42Cb16, better known as Rasmussen Cave (Photo 45), a site with deep middens, grinding slicks, rock art panels and several **burials.** This site was repeatedly excavated (and looted) in the 1930s, as noted by Beckwith (1931:220-221), who described “a tiny mummy which was resting upon a coarsely woven

mat of cedar bark" that had been removed by (looters) who also removed a woven bag, two moccasins, a corncob on a broken piece of a metate, two woven baskets, a needle, fragments of cloth and a necklace 11 feet long, consisting of 2,750 cut-to-size, bored, and polished stones of a shiny black, varied with a thin, shell-like white. Noel Morss (1931:29), operating under the auspices of the Peabody Museum at Harvard, also conducted excavations at Rasmussen Cave about the same time, recovering a partially mummified body of a child lying on its back, the arms flexed at the sides and the femurs pointed almost straight up, the lower legs missing. There was no evidence of anything accompanying the burial other than rotted fragments of mountain sheep skin adhering to the back of the head.

Donald Scott, also with the Peabody Museum, later excavated an adult skeleton with small amounts of soft tissue adhering to it and without cranial deformation. The remains were located in direct association with possible spear blades and an atlatl, complete with its foreshafts and attached flint points. The individual was wearing moccasins of a type different from later Fremont moccasins. Moccasins also had been placed over the head, and buckskin leggings and an extra moccasin tied with a piece of cedar bark were located beneath the head. "It was probably a medicine bundle, since it contained red paint pigment in a small buckskin pouch, a serrated stone artifact, a hafted blade, the wooden portions of four foreshafts and a piece of worked horn" (Gunnerson 1969:101). These excavations produced the best archaeological evidence from NMC of a pre-Formative presence in the canyon.

This transition from Archaic hunting and gathering to more sedentary lifeways that focused to a greater or lesser degree on food production corresponded with region-wide technological changes, in particular the replacement of the atlatl as the preferred hunting implement with the bow and arrow. Archaeological evidence from northeastern Utah has demonstrated that bow and arrow technology appeared in the Uinta Basin region by about A.D. 100, perhaps as early as A.D. 1 (McKibbin 1992), but the bow and arrow did not replace the atlatl as the preferred hunting weapon until several centuries later. By about A.D. 400, projectile points found at archaeological sites in northeastern Utah are predominantly corner-notched arrow points referred to as Rose Spring, Eastgate or Rosegate Series. By inference, rock art panels depicting individuals utilizing the bow and arrow date no earlier than A.D. 100.

Rose Spring points are found at some NMC sites, suggesting that bow and arrow technology may have appeared here as early as A.D. 100. However, the predominant point types found on archaeological sites within NMC are Uinta side-notched and Desert side-notched points, which appear abruptly in the region about A.D. 1000 (Leach 1970). Side-notched points continue in archaeological contexts through historic contact, and they are seen by some as evidence of the arrival of Numic-speaking hunters and gatherers (Holmer 1986; Holmer and Weder 1980). The NMC rock art sites with evidence of the bow and arrow do not distinguish corner-notched and side-notched point types. But the predominance of side-notched points at archaeological sites implies that most sites depicting the bow and arrow probably date after A.D. 1000.

Matheny (2005) has argued the predominance of rock art hunting scenes, the location of these scenes near the mouth of strategic canyon tributaries and the types of prey depicted collectively offer evidence of long-distance hunting forays, the transportation of large quantities of procured and processed meat products, and the

development of socioeconomic trade routes. He has also suggested the intensive hunting activities depicted in the rock art are incompatible with horticulture, and that farming was an ephemeral activity within NMC practiced only during optimal climatic conditions.

Hunting scenes depicting atlatls indicative of Archaic hunters are present but are not common. By comparison, depictions of the bow and arrow are ubiquitous in NMC (Photo 46). The hunting scenes commonly depict the procurement of bighorn sheep, and to a lesser extent elk, deer, bison and maybe antelope. These hunting scenes reveal clues to prehistoric hunting strategies, including the use of hunting blinds, nets, domesticated dogs and groups of hunters working together. One example of communal hunting is depicted at the Great Hunt Panel (Photo 47), a site that also depicts human familiarity with animal behavior, as well as clues as to the seasonality of certain hunts and the possibility that Cottonwood Canyon was a bighorn sheep migration corridor (Matheny et al. 1997; Matheny et al. 2004; Matheny 2005).

Also intriguing are the depictions of what appears to be dogs chasing game animals towards hunters with bows. Canines have been domesticate animals for groups living in the Colorado Plateau and Great Basin areas for several thousand years (Janetski et al. 1992), but archaeologists have rarely addressed the possibility canines were used in rugged canyon environments specifically as hunting dogs. Ethnographic sources indicate the Northern Paiute, Southern Paiute and Ute used dogs to drive large prey such as deer, mountain sheep and antelope (Kelly 1964, Lupo and Janetski 1994; Stewart 1942). The rock art within NMC shows quadrupeds clearly smaller than the bighorn sheep, with small strait ears, a small curved tail and typically an open mouth (Photo 48). There is limited evidence of canine remains, although some were recovered from nearby Caldwell Village (Haag 1966) and Desolation Canyon (Gaumer 1937). Additionally, some rock art scenes appear to depict hunting strategies involving game drives and nets (Photo 49), a behavior common among ethnographically observed Great Basin peoples (Matheny et al. 2004).

Residential Site

The predominance of hunting scenes in the NMC rock art stands in contrast to archaeological evidence that suggests prehistoric occupations were focused to a much greater extent on agriculture, primarily the cultivation of maize and probably beans and squash. Investigations in the Uinta Basin have demonstrated that fully developed maize agriculture appeared there by about A.D. 200, and that it featured distinctive Basketmaker-like characteristics (Talbot and Richens 1996). There is, as yet, little evidence of early maize agriculture in NMC, and there are few sites that fit traditional Basketmaker definitions. Rather, most evidence suggests maize cultivation here coincided with the Fremont florescence between A.D. 900 and 1300. There is minimal rock art evidence to reflect the importance of domesticated crops to local subsistence. A handful of sites contain candelabra-like figures (Photo 50) that are similar to historic Puebloan images depicting maize plants.

Single-Family Residential Sites The advent of food production had profound effects on seasonally mobile hunter-gatherers. The cultivation of maize plots mandated at least seasonal sedentism by some individuals, which is concomitant with residential structures situated near those plots. Most residential sites in the NMC

district are single-family residential sites, or a single semi-subterranean pithouse defined by a circular alignment of unmodified stone slabs stacked horizontally (Photo 51). This type of site is commonly referred to as a "farmstead" or "rancheria" where a single social unit, probably a nuclear family, resided while tending maize plots. There are certainly inconsistencies in the terminology used to describe single-family residential sites, and consequently these sites are invariably referred to in the site documentations as "pithouses," "single-room structures," "stone circles with depressions," "rubble mounds" and occasionally as "other" or "unknown" structures.

Of the 113 sites listed in the database with suspected residential features, 90 appear to exhibit characteristics of a single-family occupation (80 percent). They are typically located on benches, terraces or ridges up to 25 meters above the floodplain, although a few are located at much higher elevations in arguably defensive postures (e.g. Sky House). Single-family sites are summarized in Table 6. Artifacts are not especially common, and were noted at only 39 sites (43 percent of single-family residential sites). Rich middens suggestive of longer-term or repeated occupations are extremely rare. Grayware ceramics are surprisingly rare, occurring at only 20 single-family sites and rarely in significant numbers. This suggests that pottery vessels were not a significant part of local adaptations, and that families engaged in agricultural activities were highly mobile.

Table 6: Single-Family Residential Sites

Site No.	*Single Pithouse*	*Single-room structure*	*Stone Circle/Other*	*Other Features*	*Rock Art*	*Dateable Organics*	*Ceramics*	*Lithic Artifacts*
42Cb0036	-	X	-	AD	-	X	-	-
42Cb0040	-	X	-	DE	PE, PI	-	-	-
42Cb0042	-	X	-	-	-	-	-	-
42Cb0078	-	X	-	AE	-	X	X	X
42Cb0206	-	-	SD	-	PE	-	-	-
42Cb0209	-	-	SD	-	PE	-	-	-
42Cb0211	-	-	SD	AD	PE	-	-	-
42Cb0256	-	X	-	HE	-	-	-	X
42Cb0591	-	X		-	PE	-	-	-
42Cb0592	-	X	-	AE, DE	PE	-	-	-
42Cb0593	-	X	-	-	PE	-	-	-
42Cb0608	X	-	-	RA	-	-	X	X
42Cb0637	-	-	SC	AE	-	-	-	-

Table 6: Single-Family Residential Sites (continued)

Site No.	*Single Pithouse*	*Single-room structure*	*Stone Circle/Other*	*Other Features*	*Rock Art*	*Dateable Organics*	*Ceramics*	*Lithic Artifacts*
42Cb0640	-	X	-	-	-	X	-	-
42Cb0644	-	X	-	AI	-	-	-	-
42Cb0650	-	-	AO	-	-	-	-	-
42Cb0651	-	X	-	-	-	-	-	-
42Cb0654	-	X	-	-	-	-	X	X
42Cb0655	X	-		-	-	-	-	-
42Cb0662	-	X	-	-	-	-	-	X
42Cb0670	-	X	-	BG	-	-	X	X
42Cb0706	X	-	-	-	-	-	X	X
42Cb0717	-	X	-	-	PE	-	-	-
42Cb0719	X	-	-	-	-	-	-	-
42Cb0721	-	X	-	-	-	X	-	-
42Cb0722	X	-		-	-	-	-	-
42Cb0726	X	-	-	-	-	-	-	-
42Cb0728	-	X	-	RS	-	-	-	-
42Cb0729	-	X	-	RS	-	X	-	-
42Cb0730	X	-	-	-	-	-	X	X
42Cb0733	-	X	-	-	-	-	-	-
42Cb0734	-	X	-	-	PI	-	-	-
42Cb0749	-	X	-	RS	-	X	-	-
42Cb0761	-	-	RM	RS	-	-	-	-
42Cb0778	-	X	-	BG	-	-	-	-
42Cb0852	-	-	AO	RS	-	X	X	X
42Cb0857	-	-	AO	RS, RA	-	X	X	X
42Cb0858	-	-	AO	RS, RA	-	-	-	-
42Cb0860	-	-	AO	RS, RA	-	X	-	X
42Cb0875	-	X	-	-	-	-	-	-
42Cb0879	-	-	RM	DE	-	X	-	X
42Cb0887	-	-	RM	MD	PI	-	X	-
42Cb0891	X	-		BG, RA	PE	-	X	-
42Cb0903	X	-	-	BG, DE	-	X	X	X

Table 6: Single-Family Residential Sites (continued)

Site No.	*Single Pithouse*	*Single-room structure*	*Stone Circle/Other*	*Other Features*	*Rock Art*	*Dateable Organics*	*Ceramics*	*Lithic Artifacts*
42Cb0907	-	-	RM	BG, DE	-	X	X	X
42Cb0909	-	-	RM	RA	-	-	-	X
42Cb0913	-	X	-	RA	-	X	-	-
42Cb0956	-	-	RM	-	-	-	-	X
42Cb0963	-	-	RM	RA	-	-	-	X
42Cb0968	-	-	SC	-	-	-	-	-
42Cb0971	X	-	-	DE	-	-	-	-
42Cb1012	-	X	-	-	-	-	-	-
42Cb1049	-	X	-	-	-	-	-	X
42Cb1466	-	X	-	-	-	-	-	-
42Cb1757	-	X		-	-	X	-	-
42Cb1999	-	-	RM	-	-	-	-	-
42Cb2001	-	-	RM	-	-	-	-	-
42Cb2002	-	-	RM	-	-	-	-	-
42Cb2018	-	X	-	RA, BG	-	-	X	X
42Cb2061	-	X	-	-	-	-	-	-
42Cb2173	-	X	RS, HE	-	-	-	-	-
42Cb2220	-	X	-	-	-	-	X	X
42Dc0005	-	X	-	-	-	X	-	X
42Dc0157	-	X	-	-	PE	-	-	X
42Dc0206	-	X	-	-	-	-	-	-
42Dc0595	-	X	-	-	-	-	-	X
42Dc0622	X	-	-	-	-	X	-	-
42Dc0623	X	-	-	-	-	-	-	-
42Dc0646	X	-	-	-	-	-	-	-
42Dc0654	X	-	-	BG, RA	-	-	-	-
42Dc0656	-	X	-	AE	PE	-	-	-
42Dc0659	X	-	-	RA/HE	PE	-	X	X
42Dc0662	X	-	-	ZZ	-	-	X	X
42Dc0666	-	X	-	AE, AD	PE	X	-	-
42Dc0668	-	X	-	-	-	-	-	-

Table 6: Single-Family Residential Sites (continued)

Site No.	*Single Pithouse*	*Single-room structure*	*Stone Circle/Other*	*Other Features*	*Rock Art*	*Dateable Organics*	*Ceramics*	*Lithic Artifacts*
42Dc0676	X	-	-	AE	-	X	-	-
42Dc0681	-	X	-	-	-	-	-	-
42Dc0698	X	-	-	AE, AI	-	-	-	-
42Dc0699	X	-	-	DF, ZZ	-	X	X	X
42Dc0702	X	-	-	RA	PE	-	-	-
42Dc0708	X	-	-	DE/MD	-	-	X	X
42Dc0712	X	-	-	-	-	-	-	-
42Dc0949	-	X	-	ZZ	-	-	-	-
42Dc0950	-	X	-	-	-	-	-	-
42Dc0963	-	X	-	ZZ	-	-	-	-
42Dc1075	-	X	-	RS	PE	-	X	X
42Dc1076	-	-	SD	-	-	-	-	-
42Un1914	X	-	-	RA	-	-	-	X
42Un1918	-	X	-	AI/MD	-	X	X	X
42Un2028	-	X	-	AI	-	-	-	-

Note: Abbreviations follow Intermountain Antiquities Computer System codes. AE is storage cist, AD is granary, RA is rock alignment, MD is midden, SC is stone circle, BG is wall, AI is cairn, ZZ is unknown feature, PE is petroglyph, PI is pictograph, SD is stone circle with depression, HE is hearth

Relatively high mobility is also suggested by the paucity of on-site storage. Only 14 sites (16 percent) had granaries or storage cists in close association with the residential structure. Collectively, this evidence is suggestive of short-term or seasonal occupations focused on the cultivation and maintenance of domesticated crops by a single social unit, either an individual or family. The predominance of off-site storage (discussed later) implies that family units were not always in residence to protect their food resources, and that this mobility resulted in a paucity of residential detritus and the caching of resources in protected locales.

The relationship of rock art to single-family residential sites is poorly documented. Single-family residential sites appear to have been situated to take advantage of elevated topography in close proximity to arable lands. These ridges and terraces provide relatively flat living surfaces, but they are not always contiguous to stone surfaces conducive to rock art panels. Of the 90 single-family sites, only 17 sites (19 percent) have rock art panels in direct association with the residential activities. However, it is likely that rock art panels found near residential sites, but outside the standard 40-meters used by archaeologists to separate sites from one another, are directly associated with residential occupations. No studies have been initiated to determine if there is a relationship between residential sites and types of rock art.

Multiple-Family Residential Sites At least 23 additional sites are multiple-family residential sites, or clusters of two to seven semi-subterranean pithouses, single-room structures and multi-room structures constructed on

the same ridgeline or bench, all in close proximity to one another (Photo 52). This clustering is suggestive of extended-family occupations directed at cooperative agricultural activities. These sites tend to be more complex, featuring retaining walls (Photo 53), outdoor work areas, rock alignments and other features. There is typically greater residential detritus, including lithic debitage, potsherds and groundstone tools, although the total inventory cannot be considered large. In fact, 87 percent of sites identified as multi-family occupations had residential detritus, compared to 46 percent for single-family sites.

Multi-family sites are typically located on similar ridges and terraces that were also selected for occupation by single-family units (e.g., Franks Place, Valley Village), although larger clusters tend to be located on the tops of mesas and small buttes with difficult access to the living areas (e.g. Sunstone Village, Desolation Village). Collectively, the data from multi-family sites suggests that larger social units were remaining in the canyon to cultivate maize, perhaps in response to population expansion mandating increased food production, or increased risk of predation mandating greater vigilance in the protection of food resources. The clustering cannot be interpreted as a concentration of a large population. As mentioned above, 90 of 113 residential sites are single-family sites, whereas another 10 have two residential structures, which may or may not imply an extended family social unit. Only 10 documented sites clearly have three or more residential structures or multi-room structures suggestive of aggregations of extended family groups or perhaps non kin-related individuals.

The relationship of rock art to multi-family residential sites appears to be tenuous, at best. As with single-family residential sites, multi-family sites appear to have been situated to take advantage of elevated topography in close proximity to arable lands. These ridges and terraces provide relatively flat living surfaces, but they are not always contiguous to stone surfaces conducive to rock art panels. Of the 23 multi-family sites, only 10 sites (43 percent) have rock art panels in direct association with the residential activities. None of the sites with three or more residential structures have associated rock art panels. No studies have been initiated to determine if there is a relationship between residential sites and types of rock art. These sites are summarized in Table 7.

The above discussion is predicated on an untenable assumption that archaeologists have correctly coded the data now found in the IMACS database. However, that assumption is problematic given inconsistencies in how archaeologists have traditionally described architectural sites in NMC. What is coded as a pithouse on one site form is indistinguishable from a single-room structure on another. And what were described as “stone circles” and “rubble mounds” could, in many cases, be construed as pithouses or single-room structures. Further complicating the database is the failure to identify the number of specific structures at some sites, resulting in a value of 1 in cases where the actual number of structures was greater.

Table 7: Sites with Multiple Residential Structures

Site No.	*Pithouses*	*Single-room*	*Multi-room*	*Other Features*	*Rock Art*	*Dateable Organics*	*Ceramics*	*Lithic Artifacts*
42Cb0003	1	1	-	-	-	-	X	X
42Cb0004	4	-	-	-	-	X	X	X
42Cb0030	-	2	-	-	PE	X	X	-
42Cb0037	-	-	1	AE2	PI	-	-	-
42Cb0446	-	1	1	RA	PE	X	X	X
42Cb0641	1	1	-	-	-	-	-	-
42Cb0669	-	3	-	RA	-	-	X	X
42Cb0732	-	1	1	AD2	-	X	-	X
42Cb0770	3	-	-	RA, MD	-	X	X	X
42Cb0795	2	-	-	AD, RA	PE, PI	X	X	X
42Cb1050	-	-	1	-	PE	-	-	-
42Cb2000	1	1	-	AD	PE, PI	X	X	X
42Cb2047	-	5	1	BG	PE, PI	X	X	X
42Cb2216	1	4	-	RA, AI	-	-	X	X
42Dc0216	-	3	-	-	-	-	-	-
42Dc0619	1	1	-	-	-	X	X	X
42Dc0636	1	1	-	RM, RA	-	-	X	X
42Dc0653	1	1	-	AD, RA	PE, PI	X	X	X
42Dc0662	1	-	-	SC	-	-	X	X
42Dc0670	1	1	-	AE	PE, PI	X	-	-
42Dc1082	-	1	-	RM	PE	-	-	X
42Un1913	-	3	-	ZZ, AI	-	-	-	X
42Un1926	1	5	-	RA, AI, SC	-	X	-	X

Note: Abbreviations follow Intermountain Antiquities Computer System codes. AE is storage cist, AD is granary, RA is rock alignment, MD is midden, SC is stone circle, BG is wall, AI is cairn, ZZ is unknown feature, PE is petroglyph, PI is pictograph

The paucity of radiocarbon dates prevents any discussion of whether there are temporal differences between single-family and multiple-family occupations, or whether they were contemporaneous. In both cases, the close proximity of arable lands suggests that site locations were chosen based on economically efficient access to maize plots. These locations typically do not feature smooth cliff faces suitable for rock art, and even when they do, rock art images are rare. In most cases, residential sites with associated rock art feature only a few images, all without significant elaboration or complexity. Typically, the large, complex rock art sites are located a short distance away from the residential sites, often at the mouths of nearby side canyons.

Storage Site

Prehistoric farmers also appear to have made a significant commitment to the storage of food resources, incorporating an elaborate strategy that involved many different types of storage facilities. Storage sites are generally located on narrow cliff ledges that are often inaccessible and protected by overhangs, and they are typically located about 5 meters to 75 meters above the valley floor. However, one of the most compelling characteristics is the ubiquity of granaries and caches. Structures range from small, single-chambered slab-lined caches hidden under ledges to clusters of large, cylinder-shaped masonry and adobe structures high on narrow cliff ledges. Some residential sites feature on-site storage, usually small masonry rooms attached to the exterior of the pithouse, in cists in the pithouse floor and/or in expedient adobe structures along adjacent cliff faces.

At least 98 sites in the NMC have storage facilities (storage sites are summarized in Table 8). There is no convincing correlation between storage sites and the co-occurrence of rock art sites where only 27 storage sites (28 percent) also have associated rock art panels, 10 of which also have associated residential structures. Where rock art occurs with isolated or remote storage facilities, the figures are typically small, non-diagnostic wavy lines, zigzags and other geometric shapes. Occasionally, granaries high on cliff faces will feature complex rock art panels directly below at the base of the cliff, although a direct relationship between the two is tenuous. The relationship between storage sites and rock art has not been adequately investigated.

Food caching in **slab-lined cists** is common throughout the Southwest, especially at Basketmaker sites, and may be associated with caching maize in contexts of greater mobility than during Pueblo times. Slab-lined cists co-occur with the utilization of pithouses within a pattern of mobility between a minimum of two residences, and the cists likely reflect reliance on stored foods during the winter (cf. Gilman 1987). These observations are in accord with previous suggestions of relatively high mobility among some Fremont populations (e.g., Simms 1986; Barlow 1997, 2002). Slab-lined cists are common throughout NMC, ranging from very small facilities (Photo 54) to extremely large (Photo 55). Most are situated on cliff ledges or at the base of a cliff with a protective overhang.

Larger, cylindrical adobe and **masonry granaries** are typically much larger and almost always are located on inaccessible cliff faces (Photo 56). They often have the same size range as storage structures found at some Fremont residential sites. The inaccessibility of these structures suggests a strategy of seasonal sedentism of multiple families living near larger, more productive fields, and large household or community larders on cliff faces, perhaps to protect food stores from neighbors or immigrants. Almost always, these structures are easily seen from the valley floor, but nearly impossible to access.

At least 20 residential sites have **on-site storage**, often consisting of small rooms of coursed-stone masonry attached to the outer wall of a pithouse (Photo 57). These collapsed structures are generally about 1 to 1.5 meters in diameter, although their original shape often cannot be ascertained (none have been excavated within

Table 8: Storage Sites and Associated Features

Site No	*Granaries*	*Cist*	*Rock Art*	*Residential On Site*	*Other*	*Dateable Organics*	*Ceramics*	*Lithic Artifacts*
42Cb0001	-	1	-	-	-	X	X	X
42Cb0023	1	-	-	-	-	X	-	-
42Cb0033	1	-	-	-	-	-	-	-
42Cb0036	1	-	-	AP	-	X	-	-
42Cb0037	-	2	PI	AQ	-	-	-	-
42Cb0044	1	-	-	-	-	-	-	-
42Cb0046	1	-	-	-	RS	X	-	-
42Cb0048	2	-	-	-	-	-	-	-
42Cb0078	-	1	-	AP	-	X	X	X
42Cb0143	1	-	-	-	-	-	-	-
42Cb0211	1	-	PE	SD	-	-	-	-
42Cb0212	1	-	PE, PI	-	-	-	-	-
42Cb0592	-	1	PE	AP	DE	-	-	-
42Cb0604	1	-	PE	-	-	-	-	-
42Cb0667	1	-	-	-	-	X	-	-
42Cb0668	1	-	-	-	-	-	-	-
42Cb0690	1	-	-	-	-	X	-	-
42Cb0697	1	-	-	-	-	-	-	-
42Cb0716	1	-	-	-	-	-	-	-
42Cb0727	1	-	-	-	-	-	-	-
42Cb0731	1	-	-	-	-	X	-	-
42Cb0732	2	-	-	AP, AQ2	DE	X	-	X
42Cb0742	1	-	PE, PI	-	-	-	-	-
42Cb0743	-	1	PE, PI	-	-	X	-	-
42Cb0745	-	1	PE	-	-	-	-	-
42Cb0751	-	1	-	-	-	X	-	-
42Cb0769	1	-	PE, PI	-	-	-	-	-

Table 8: Storage Sites and Associated Features (continued)

Site No	*Granaries*	*Cist*	*Rock Art*	*Residential On Site*	*Other*	*Dateable Organics*	*Ceramics*	*Lithic Artifacts*
42Cb0776	1	-	PI	-	-	X	-	-
42Cb0777	1	-	-	-	-	-	-	-
42Cb0779	-	1	-	-	RS	-	-	-
42Cb0791	-	3	PE	-	-	-	-	-
42Cb0795	1	-	PE, PI	AF2	RA	X	X	X
42Cb0853	1	1	-	-	-	-	-	-
42Cb0861	-	1	-	-	-	-	-	-
42Cb0862	-	1	-	-	-	-	-	-
42Cb0867	1	-	-	-	-	-	-	-
42Cb0876	-	1	-	-	-	X	-	X
42Cb0882	-	1	PE	-	-	-	X	-
42Cb0891	-	1	PE	AF	RA, BG	-	X	-
42Cb0893	-	1	-	-	-	X	-	-
42Cb0905	1	-	PI	-	-	-	-	-
42Cb0919	-	1	PE	-	-	-	X	-
42Cb0923	1	-	-	-	-	X	-	-
42Cb0963	1	-	-	RM	RA	-	-	-
42Cb0977	-	1	-	-	-	-	-	-
42Cb1051	1	-	-	-	-	-	-	-
42Cb1735	1	-	-	-	-	-	-	-
42Cb2000	1	-	PE, PI	AF, AP	-	X	X	X
42Cb2013	1	-	-	-	-	-	-	-
42Cb2014	1	-	-	-	-	-	-	-
42Cb2016	3	-	-	SC	-	X	-	-
42Cb2043	3		PE, PI	AP3, AQ, AO2	BG	X	X	X
42Cb2047	-	1	PE	-	-	-	-	-
42Cb2059	1	-	-	-	-	-	-	-
42Cb2062	2	-	-	-	-	-	-	-
42Cb2069	1	-	-	-	-	-	-	-
42Cb2196	-	1	-	-	RA	-	-	-
42Cb2198	1	1	-	-	-	X	-	-

Table 8: Storage Sites and Associated Features (continued)

Site No	*Granaries*	*Cist*	*Rock Art*	*Residential On Site*	*Other*	*Dateable Organics*	*Ceramics*	*Lithic Artifacts*
42Cb2214	1	-	-	-	-	X	X	X
42Cb2215	1	-	PE, PI	-	-	-	-	-
42Cb2219	1	-	-	-	-	-	-	-
42Cb2221	1	-	-	-	-	-	-	-
42Dc0191	-	1	-	-	-	-	-	-
42Dc0229	1	-	-	-	-	X	-	-
42Dc0620	1	-	-	-	-	-	-	-
42Dc0638	-	1	-	-	RA	-	-	X
42Dc0650	1	-	PI	-	-	X	-	-
42Dc0652	1	-	PI	-	-	-	-	-
42Dc0653	1	-	PE, PI	AF, AP	RA	X	X	X
42Dc0655	1	-	-	-	-	X	-	-
42Dc0656	-	1	PE	AP	-	-	-	-
42Dc0664	1	-	-	-	BG	-	-	-
42Dc0665	1	1	-	-	-	X	-	-
42Dc0670	-	1	PE, PI	AF, AP	-	X	-	-
42Dc0672	1	-	-	-	-	-	-	-
42Dc0675	-	1	-	-	-	-	-	-
42Dc0676	-	2	-	AF	-	X	-	-
42Dc0684	-	1	-	-	-	X	-	-
42Dc0686	2	-	-	-	-	-	-	-
42Dc0689	1	-	-	-	BG	-	-	-
42Dc0692	1	-	-	-	-	-	-	-
42Dc0697	-	1	-	-	-	-	-	-
42Dc0698	-	1	-	AF	AI	-	-	-
42Dc0699	-	1	-	AF	ZZ	X	X	X
42Dc0704	2	-	-	-	BG	X	-	X
42Dc0709	1	-	-	-	-	X	-	-
42Dc0720	1	-	-	-	-	-	-	-
42Dc0771	-	1	-	-	-	-	-	X
42Dc1079	1	-	-	-	-	-	-	-

Table 8: Storage Sites and Associated Features (continued)

Site No	*Granaries*	*Cist*	*Rock Art*	*Residential On Site*	*Other*	*Dateable Organics*	*Ceramics*	*Lithic Artifacts*
42Dc1618	1	-	-	-	-	-	-	-
42Un1900	-	1	PE	-	-	-	-	-
42Un2030	-	1	-	-	-	-	-	-

Note: Abbreviations follow Intermountain Antiquities Computer System codes. AF is pithouse, AP is single-room structure, AQ is multi-room structure, AO is unknown structure, SC is stone circle, SD is stone circle with depression, PI is pictograph, PE is petroglyph, BG is wall, AI is cairn, ZZ is unknown, RS is rockshelter, DE is depression

NMC). On-site storage implies a greater level of sedentism in that pithouse occupants were retaining food resources close by for immediate consumption and probably to facilitate better protection of resources from rodents and human predation.

Whereas on-site storage implies greater sedentism, the presence of hidden **subterranean cists** in remote locales, sometimes hundreds of meters above the floodplain, suggests a strategy of remote caching of critical resources reflecting greater mobility. These cists are often camouflaged and are difficult to see, even when standing directly above or below them. The utilization of caches implies that human groups were hiding critical resources due to an inability to protect them through their direct presence. Subterranean cists in the archaeological district have yielded cottonwood shovels, digging sticks and food remains.

One unique aspect of NMC rock art could shed some light on storage strategies. Throughout the canyon are images of individuals with large packs on their backs, usually walking in a row. Some are carrying a staff or other object. These are popularly referred to as burden-bearer figures (Photo 58). One possibility is that NMC was occupied seasonally by families or individuals who planted crops in the spring. A small number remained during the summer to maintain and protect the crops, followed by a harvest in the fall by a larger population. The canyon was largely abandoned during the winter months, during which time maize was stored in large inaccessible cliff granaries and hidden in caches for retrieval throughout the winter as needed. The burden-bearer images could be a reflection of the transport of food resources from one location to another. Matheny (2005) suggests the burden-bearers are carrying the "spoils" of bighorn sheep hunts, citing 42Dc1106 with nine burden-bearers walking between two bighorn sheep as corroborative evidence.

Rock Alignments

At least 27 sites contain large stone cairns of suspected prehistoric antiquity (see Table 9), either because they are found on sites with other constructed prehistoric features and artifacts, or because they exhibit the same construction techniques and/or significant lichen growth. It should be noted that prehistoric cairns found in isolation have no associated artifacts of any kind. Cairns are also found at six residential sites, four of which have artifacts indicative of Fremont occupations. It is therefore assumed that cairns found without associated

artifacts also date to the Fremont occupation of the NMC. None of the cairns are associated with rock shelters or rock art sites, and their function remains entirely speculative.

Another type of structure is more problematic. Small, dry-laid **stone circles** ranging from 0.5 to 1 meter in diameter are found in the lower part of the archaeological district on the edge of cliffs and outcrops (the same topographic settings as the stone cairns). They are always in a line-of-sight with other stone circles, cairns or residential sites. These circles, casually referred to as "play pens," consist of loosely stacked horizontal stone slabs arranged two to four courses high without any evidence of a superstructure (Photo 62). No artifacts of any kind have been found in direct association with the structures. The structures are of a size consistent with small storage structures, but that is unlikely given their exposure to the elements and isolation on high cliff edges. Another possibility is the stone circles are remnants of an elaborate communications system whereby fire could have been utilized to signal residents the entire length of the canyon upon the arrival of visitors or threats.

Table 9: Prehistoric Stone Cairns

Site No.	*Rock Shelter*	*Prehistoric Cairns*	*Other Features*	*Rock Art*	*Dateable Organics*	*Ceramic Artifacts*	*Lithic Artifacts*
42Cb0627	-	AI	RA	-	-	-	-
42Cb0644	-	AI	AP	-	-	-	-
42Cb0780	-	AI	-	-	-	-	-
42Cb0781	-	AI	-	-	-	-	-
42Cb0782	-	AI	-	-	-	-	-
42Cb0839	-	AI	-	-	-	-	-
42Cb0866	-	AI	RA	-	-	-	-
42Cb2216	-	AI	AP4, AF, RA	-	-	X	X
42Dc0609	-	AI	-	-	-	-	-
42Dc0645	-	AI	-	-	-	-	-
42Dc0678	-	AI	-	-	-	-	-
42Dc0680	-	AI	-	0	-	-	-
42Dc0688	-	AI	-	-	-	-	-
42Dc0690	-	AI	-	-	-	-	-
42Dc0691	-	AI	-	-	-	-	-
42Dc0698	-	AI	AF, AE	-	-	-	-
42Dc0721	-	AI	-	-	-	-	-
42Un1911	-	AI	-	-	-	-	-
42Un1913	-	AI	AP3, ZZ	-	-	-	X

Table 9: Prehistoric Stone Cairns (continued)

Site No.	*Rock Shelter*	*Prehistoric Cairns*	*Other Features*	*Rock Art*	*Dateable Organics*	*Ceramic Artifacts*	*Lithic Artifacts*
42Un1916	-	AI	-	-	-	-	-
42Un1918	-	AI	AP	-	X	X	X
42Un1926	-	AI	AP5, SC, AF		X	X	X
42Un1931	-	AI	-	-	-	-	-
42Un1932	-	AI	-	-	-	-	-
42Un1933	-	AI	-	-	-	-	-
42Un1939	-	AI	-	-	-	-	-
42Un2028		AI					

Note: CN=Cairn, RA=Rock Alignment, SR=Single-Room Structure, SC=Stone Circle.

The aggregation of families into a larger social unit would have mandated a mechanism for conflict resolution and resource allocation, as well as providing a framework for social, economic and political intercourse. Throughout the Southwest, these activities typically occur within the context of ceremonies, as well as structures utilized in **ceremonial** contexts (e.g., kivas). Site 42Dc5, an unusually large surface structure known as Nordell's Fort, could be evidence of a ceremonial structure (Photo 63), although researchers have been reluctant to assign ceremonial structures to Fremont occupations on the northern Colorado Plateau. The structure was built on an isolated bedrock outcrop 100 meters above the floodplain with a commanding view of the canyon. The double-coursed walls rise to 2 meters in height, preventing any view out of the structure. Access is via a steep slope, but it lacks the defensive posture of other surface sites. The structure is in a remarkable state of preservation with walls that exhibit precise stacking of uniform stones and meticulous chinking with smaller stones to create a smooth interior surface and remarkable preservation (Photo 64).

The increased social stress evident throughout the greater Southwest from about A.D. 900 to 1300 may also be evident in rock art panels found throughout NMC. There are numerous sites where individuals appear to be shooting arrows at other humans, and some contain scenes of individuals apparently engaged in violent conflict. The most famous of these sites is Warrior Ridge (Photo 65), an unrecorded site that depicts scores of individuals with shields, clubs, staffs or other weapons engaged in what is popularly interpreted as battle scenes. It is also possible the scenes represent games, ceremonies or other non-lethal events.

Although remnants of pithouses and granaries are large and impressive reminders of prehistoric human adaptations, the NMC also contains dozens of smaller, less visually impressive sites, including an abundance of ephemeral rock alignments (Photo 66) and dry-laid stone walls (Photo 67). At many large residential sites, these alignments and walls could be remnants of collapsed structures that, over time, have lost their definition through erosion, or they could be the remains of features from which building stones were removed for use on nearby structures. At many other sites, rock alignments and stone walls appear to occur in isolation, often without associated artifacts or clear indication of the purpose behind the feature. These enigmatic features have not been

studied, nor have hypotheses been offered as to the human behavior associated with these features. There appears to be little direct correlation between these sites and rock art panels, with 17 of 54 "miscellaneous" sites (31 percent) also containing rock art panels. Sites with miscellaneous features of unknown utility (e.g., walls, alignments, depressions) are summarized in Table 10.

Table 10: Miscellaneous Contributing Architectural Sites

Site No.	*Rock Shelter*	*Constructed Features*	*Other Features*	*Rock Art*	*Dateable Organics*	*Ceramic Artifacts*	*Lithic Artifacts*
42Cb0034	-	RA	-	PE, PI	X	X	X
42Cb0041	-	-	DE	-	-	-	-
42Cb0615	-	-	DE	-	-	X	X
42Cb0658	-	RA	-	PE	-	-	-
42Cb0664	-	RA	-	PE	-	-	-
42Cb0672	-	RA	-	-	-	-	-
42Cb0683	-	BG	-	PE	-	-	-
42Cb0698	-	-	DE	PE	X	-	X
42Cb0710	-	-	DE (5)	-	X	X	X
42Cb0711	X	-	DE (2)	PE	X	-	-
42Cb0712	-	-	DE	PE	X	-	-
42Cb0757	X	RA	-	PE	X	-	X
42Cb0771	-	BG, RA	-	-	X	X	-
42Cb0772	X	BG	-	-	X	X	-
42Cb0773	X	BG	-	-	X	X	-
42Cb0774	-	BG	-	-	X	-	-
42Cb0775	-	BG	-	-	-	-	-
42Cb0803	X	-	DE	-	-	-	-
42Cb0804	-	RA	-	PE	-	-	-
42Cb0869	-	RA	-	-	-	-	-
42Cb0889	X	BG	DE	PE	-	-	-
42Cb0921	-	RA	-	-	X	-	-
42Cb0967	X	RA	-	PE, PI	-	-	X
42Cb0969	-	RA	-	PE	X	-	-
42Cb0972	-	RA	-	-	-	-	-
42Cb0973	-	RA	MD	-	X	X	X

Table 10: Miscellaneous Contributing Architectural Sites (continued)

Site No.	*Rock Shelter*	*Constructed Features*	*Other Features*	*Rock Art*	*Dateable Organics*	*Ceramic Artifacts*	*Lithic Artifacts*
42Cb1048	-	RA	-	-	-	-	-
42Cb2004	-	BG	HE	-	-	X	X
42Cb2005	-	BG	HE	PE, PI	-	-	-
42Cb2015	-	BG	-	-	-	-	-
42Cb2070	X	BG	-	-	-	-	-
42Cb2192	-	RA	-	-	-	-	X
42Dc0610	-	RA	-	-	-	-	-
42Dc0611	RS	BG	-	-	-	-	-
42Dc0627	-	RA	-	-	X	-	X
42Dc0647	-	-	DE	-	X	X	X
42Dc0651	-	OT	-	-	-	-	-
42Dc0660	RS	BG	-	-	-	-	-
42Dc0661	-	BG	-	-	-	-	-
42Dc0671	-	BG	-	PI	-	-	-
42Dc0677	-	BG	-	-	-	-	-
42Dc0685	-	RA	-	-	-	-	-
42Dc0687	-	RA	-	-	-	-	-
42Dc0693	-	RA	-	-	-	-	-
42Dc0696	-	BG	-	-	X	-	-
42Cb0715	-	BG	-	-	-	-	-
42Dc0716	-	BG	-	PE	-	-	-
42Dc0769	-	RA	HE	-	-	-	X
42Dc1077	RS	RA	-	PE	-	-	-
42Dc1080	RS	RA	DE	-	-	-	-
42Dc1302	-	BG	-	PE	-	-	-
42Un1899	-	RA	HE	-	-	-	X
42Un1908	-	RA	-	-	-	-	-
42Un1940	-	RA	-	-	-	-	-

Note: Abbreviations follow Intermountain Antiquities Computer System codes. RS is rockshelter, RA is rock alignment, DE is depression, BG is wall, OT is other, HE is hearth, PI is pictograph, PE is petroglyph.

Site Types Associated with the Historic Period

Nine Mile Canyon Road

The focus for most of the important trends in Nine Mile's history is the canyon road and sites associated with the Nine Mile Canyon road. Physical attributes of the road include features such as pieces of road bed, stone embankments and dugways and sites that result from road use like the structures at The Wells, axle grease writings and other features created for the travelers like motels and forges. Associated features and sites are located near the road because it made it more convenient to transport supplies or to monitor conditions. The military's telegraph line and many of the homesteads would be examples of these associated features and sites.

There were some obvious difficulties evident during the review of the historic site forms for this nomination. Many aspects of the canyon's history are well known and publicized. However, many of the known historic sites in the canyon have not been formally recorded and those which have been are often not well-documented. Most of the canyons historic sites are on private land and frequently in poor condition or completely gone. Because they are on private land, there has been less interest in the historical aspects of the canyon, and for other reasons most of the historic sites in the canyon have never been formally recorded. A building survey was conducted in 1994 which includes a photograph of the property from the road and sometimes a sketched floor plan, but no history and usually no site plan. For example, no IMACs site form was found at State History for Nutter's Ranch and Harper, two of the most important historic sites in the canyon, although Harper (42CB610) has been assigned a state Smithsonian number. Yet, the history and a description of these two sites are available on several websites, canyon brochures and in local history books. Another example is none of the line cabins mentioned by Chris Bailey (2004) have been formally recorded. In other instances, locations without physical remains or evidence, which as such do not technically qualify as archaeological sites, have been incorporated in road guides, popular literature and web sites. West Point and Outlaw Point are two such locations in Gate Canyon.

Another problem is Utah professional archaeologists and volunteers tend to be prehistorically trained and frequently miss or ignore historic features. Fences and ditches are rarely recorded, yet they are two vital aspects of homesteading and ranching practices. In other instances researchers do not document historic sites with the same care as they treat prehistoric sites or conduct thorough file searches. At least two problems result from this lack of experience. First the site forms tend to have extremely limited description of associated artifacts and may contain incorrect terms, garbled descriptions, or misidentified items. Secondly, the crews generally do not incorporate techniques or approaches that could provide information on historic features, like consulting GLO Plats, County Recorder offices, or conducting oral interviews. The cabins that have been recorded in and around the canyon (42Cb209, 42Cb211, 42Cb212) contain no historical records file search, nor any indication of whether a search was attempted or what files may have been consulted. As a result they contain no information about previous owners or purpose for the cabin's construction. This is even the case for 42Cb242, a site with historic rock structures in the canyon, where the physical remains on the ground were carefully documented; described, drawn and photographed by a professional firm. However there is no evidence of a

historical records search. Further research inventory and more careful documentation is needed to fully understand how the historic sites and features relate to the themes listed in this context.

Road Features Presently, there are no formally documented features for the physical attributes of the Nine Mile Canyon road. The 6th Infantry, stationed at Fort Douglas, is responsible for improving the Nine Mile Canyon road from the train depot to the fort. There are conflicting accounts as to whether the soldiers improved an existing road or built a new route. A trail or an informal road probably existed in the area because cattlemen and homesteaders built cabins in the canyon and the soldiers worked to significantly improve road sections by constructing dugways and stone embankments. Military records indicate at least two episodes in the falls of 1886 and 1887 when work details performed "repairs" to the road (Weicks, personal communication, 2009). Although there is no mention of culverts or ditches in the literature, it is likely that these two features were used in an effort to drain or keep water off of the road. Evidence of road segments are visible on the landscape and are pointed out in various travel brochures and guides. In at least one case, a professional archaeologist felt that a description of a road segment was included as part of a multi-component IMACS site recording. No evidence of this multi-component site form has surfaced. However, "old stage road and cribbing" was briefly noted in the 1994 canyon building survey. The short form (CR-36, Site #25) has a photo and site plan, but little other information. Additional documentation is sorely needed for many of the historic features in the canyon. In addition, more care needs to be taken in documenting multi-component sites with IMACS site forms so that historic elements are captured in the appropriate check boxes in Site Class and described in the Site Type and Site Description section of the recording forms.

Commerce Commerce sites on the Nine Mile Canyon road provided some type of good, service or commodities (e.g. lodging, saloons, way-stations) for travelers (Photo 6). Typical of the historical sites in the canyon is 42Dc230, Smith Wells or The Wells, a well known spot along the Nine Mile Road. However, all that remains are foundations and rock walls of the stagecoach inn and freight stop that were captured in 100 year old photographs. Fire, flash floods, and heavy visitation have taken a toll on the features and most of the wood, including all the roofs, are gone. The site is on private land adjacent to the current Myton-to-Nine Mile Canyon road and a 2006 IMACS site form indicated that five historic inscriptions, six stone walls, five single-room structures, one multi-room structure, one sandstone foundation, and two depressions are present. The walls and rooms remains range from three to ten courses high and are 100-160 cm high. Wire and metal scraps, a single ceramic sherd and a piece of amethyst glass are some of the few surface artifacts noted. The history and layout of Smith Wells was captured in a 1993 Utah Historical Quarterly article by Bert Jenson. None of the other commerce sites have received the same attention. Nutter's Ranch (CR-36, Site #30) and Harper (CR-36, Site#23, 42CB610) are other examples of these commercial sites. Harper is in very poor condition and Nutter's has been extensively renovated. Unfortunately, it is not clear from the brief building survey forms, which of the features at these complexes were the hotels, dance floor, store or other commercial buildings.

Homesteads Homesteads are complexes which usually consist of many features such as buildings (e.g. living quarters, outhouses, barns), dugouts, cellars, rock foundations, wells, irrigation systems (e.g. ditches, reservoirs (Photo 4)), corrals and pens (Photo 20), historic inscriptions, fences, hearths and historic refuse. The primary

residences at these homesteads are usually wood, but in at least one case stone (Photo 1). There are a number of structures mentioned in the 1994 building survey. Single cell, hall-parlor, and one bungalow vernacular dwellings were noted during the period of significance. The single cell and hall-parlor tend to be hand-hewn wood logs or saddle-notched log cabins and sometimes incorporating both hewn and unhewn logs. Where foundations were visible, they usually consisted of loose river cobbles or bedrock. Dirt and wood plank floors predominate and wood plank roofs are common. Inside-out granaries and sheds are the common outbuilding of the period. Hearths are identified by a charcoal stain enclosed by fire-cracked, reddened sandstone rocks. An example of a homestead is 42Cb407 that consists of two dugouts, a rock foundation, a barbed wire corral and historic refuse. The historic refuse is composed of machine-made purple, blue & brown bottles, stove parts, wire nails, tin cans and white china. For examples of corrals and pens, historic inscriptions, fences and historic refuse, see the appropriate heading in this property type.

Many homesteads were abandoned near the turn of the century and sparse evidence may currently exist. Many of the buildings like cabins have collapsed or disappeared. Pastures, ditches, cellars may no longer be visible, or are barely perceptible. In other instances, where the homestead continued to be occupied or used, the features have usually experienced extensive renovations, additions, changes, and upgrades through the years. Buildings, corrals, and fences have been added, removed, or significantly altered through the years. The purpose and use of buildings often dramatically changed; for instance what was once a home may now be used for storage. In spite of the alterations and changes, these types of sites are still significant because this practice helps capture their importance and continued use through time. Because they are almost exclusively private property, non-historic intrusions at homestead sites tend to be limited to modern fences, corrals, irrigation features, new sheds and outbuildings, but in at least one instance a modern recreational "cabin."

Communication In addition to the stage and mail lines that used the Nine Mile route, the military's telegraph line paralleled the road. The communication systems in Nine Mile Canyon consisted of telegraph poles (metal, wood) (Photo 2), telephone poles (metal, wood), insulators (ceramic, glass), wire (copper, galvanized, iron) and buildings. An interesting aspect of the Nine Mile telegraph line was the use of gilsonite insulators. Sometimes called hard rubber insulators, identification of surviving gilsonite insulators would help verify the original line location. Up to 1890, all of the telegraph poles were made of wood until the US Army performed a mandated upgrade and replaced every second wooden pole with an iron one (Weicks 2008:66). Weicks (2008:67) notes that in 1907, the Fort Duchesne telephone line connected the fort to Price by running through Nine Mile Canyon. Telegraph stations in 1898-1899 were located at Duchesne Bridge, The Wells, Brocks, Lee's Ranch and Price. The military telegraph station at Nutters Ranch is made of stone, but it is not known whether the other stations mentioned in the historical record were similarly constructed or not. The Nine Mile telegraph and telephone features have not been formally documented. The telegraph station at Nutter's Ranch (CR-36, Site#38) was briefly described in the 1994 canyon building survey. It is a square (18 foot) single cell building built of cut and random sandstone blocks with a wood plank roof.

Historic Inscriptions The steep pulls, slick rock, and other aspects of the terrain were hard on animals and equipment. Campsites, rest stops and even a community forge blossomed near these difficult spots as animals had to be rested or equipment repaired. Names written in axle grease or incised in a rock face frequently mark the cliffs near these spots (Photo 7). Many of the most prominent historic inscription sites, like the forge location at Slick Rock, are included in brochure and canyon guides, but have never been formally documented. Most of the historic inscriptions that have been documented are single or a few names/initials that were recorded as part of a much larger prehistoric rock art site. Historic inscriptions vary in context and may consist of initials, names, names and dates, phrases or incised images. Some of the inscriptions may also be pecked. The majority of "historic inscriptions" recorded to date are single sets of initials or name on a panel with several prehistoric figures. Notable exceptions to this pattern include 42Dc643, an excellent illustration of multiple types of inscriptions in different mediums. Over 80 inscriptions were recorded with dates which ranged from 1899-1969. Historic inscriptions may also be found on prehistoric rock art panel as seen at 42Dc1109. The panel is dominated by Fremont figures, but there are several historic inscriptions as well. Most notably is deeply incised "Jed MOTT" with "May 24, 92" below it. Also noted are historic inscriptions with other prehistoric site types such as rock structures. 42Dc595 has several incised signatures with dates that range from 1919-1934.

Although Ute rock art is considered historic, it is not included in this property type. They are included in the Rock Art property type in the Western Colorado group (Section F, 25-26).

Corrals and pens Corrals and pens are constructed to enclose livestock (e.g. cows, sheep, horses, pigs) and are built of unshaped, dry-laid rock (primarily sandstone), wood, metal or combination of any of aforementioned materials. In some cases, the natural landscape (e.g. cliffs, ledges) may have been used. These features are sometimes mentioned as part of a larger site, but have rarely been recorded or described in any detail.

Fences Fences are used to keep livestock in or out of a particular area or to indicate property lines. Fences formally documented or noted in the literature are types such as drift, brush, rail fences, rail fences with wire net, barbed wire, rock and two poles & rails. Two poles & rails fences have been documented at early 20th

Table 11: Historic Sites and Associated Features

Site No.	*Nine Mile Canyon Road*	*Livestock Management*	*Historic Inscriptions*	*Homesteads*	*Campsite*	*Historic Features*	*Prehistoric Features*
42Cb0012	X	-	X	-	-	-	PE, PI
42Cb0138	X	-	X	-	-	-	BS, CA, CS, PE, PI

Table 11: Historic Sites and Associated Features (continued)

Site No.	*Nine Mile Canyon Road*	*Livestock Management*	*Historic Inscriptions*	*Homesteads*	*Campsite*	*Historic Features*	*Prehistoric Features*
42Cb0209	X	-	-	-	X	HR	-
42Cb0211	X	-	-	-	X	-	-
42Cb0212	X	-	-	-	X	HR	-
42Cb0242	-	X		X	-	CP, HE, HR	PE, PI
42Cb0264	X	-	-	-	-	RA	LS, PE
42Cb0319	X	-	-	-	-	HR	PE
42Cb0407	-	X	-	X	-	CP, HR	-
42Cb0586	X	-	X	-	-	-	-
42Cb0594	X	-	X	-	-	-	-
42Cb0595	X	-	X	-	-	-	PE
42Cb0600	X	-	X	-	-	-	LS, PE
42Cb0601	X	-	X	-	-	-	-
42Cb0604	X	-	X	-	-	-	PE, AE
42Cb0614	X	-	X	-	-	-	PE
42Cb0619	X	-	X	-	-	-	PE
42Cb0631	X	-	X	-	-	-	PE, PI
42Cb0647	X	-	X	-	-	-	PE, CS
42Cb0671	X	-	-	X	-	CP	-
42Cb0674	X	-	X	-	-	-	PE
42Cb0676	X	-	X	-	-	-	PE
42Cb0696	X	-	X	-	-	-	DE, PE
42Cb0824	X	-	X	-	-	-	PE
42Cb0825	X	-	X	-	-	-	PE
42Cb0826	X	-	X	-	-	-	PE
42Cb0894	X	-	X	-	-	-	PE
42Cb0898	X	-	X	-	-	-	PE, PI
42Cb0899	X	-	X	-	-	-	-
42Cb0914	X	-	X	-	-	-	CA, LS, PI
42Cb0978	X	-	X	-	-	-	PE

Table 11: Historic Sites and Associated Features (continued)

Site No.	*Nine Mile Canyon Road*	*Livestock Management*	*Historic Inscriptions*	*Homesteads*	*Campsite*	*Historic Features*	*Prehistoric Features*
42Cb1012	X	-	-	-	-	HR	-
42Cb1758	X	-	-	-	-	CP	-
42Cb1999	X	-	-	-	-	RC	-
42Cb2001	X	-	-	-	-	RC	-
42Cb2002	-	X	-	-	-	HR, RA	-
42Cb2028	X	-	X	-	X	HE, HR	PE
42Dc0595	X	-	X	-	-	-	AE, LS, RA
42Dc0643	X	-	X	-	-	-	PE, PI
42Dc0680	-	X	-	-	-	-	-
42Dc0682	-	X	-	-	X	HR	-
42Dc0692	-	X	-	X	-	HE, HR	-
42Dc1062	X	-	X	-	-	-	PE
42Dc1084	X	-	X	-	-	-	BS, LS, ME, PE
42Dc1090	-	X	-	-	-	FE	-
42Dc1093	X	-	X	-	-	-	PI
42Dc1104	X	-	X	-	-	-	-
42Dc1105	X	-	X	-	-	-	PE
42Dc1109	X	-	X	-	-	-	PE
42Dc1302	-	X	-	-	-	FE	PE
42Dc1640	X	-	X	-	-	-	-
42Dc2272	-	X	-	-	-	FE	-
42Dc2274	X	-	X	-	-	-	PE
42Dc2486	X	-	X	-	-	-	PE
42Dc2496	X	-	X	-	-	-	PE, PI
42Dc2607	X	-	X	-	-	-	-

Note: Abbreviations are as follows: AE is a storage cist, BS is burned stone, CA is charcoal, CP is corral/pen, CS is ceramic scatter, DE is depression, FE is fence, HE is hearth, HR is historic refuse, LS is lithic scatter, ME is bedrock metate, PE is petroglyph, PI is pictograph, RA is rock alignment, RC is rock concentration, TR is trail.

century homestead sites in northeastern Utah such as the Allen homestead (Sowers Canyon) and Swett Ranch (Uinta Mountains). This fence construction may be diagnostic of this era and several examples exist in Nine Mile. Log-worm and buck & pole fences have also been documented at historic sites which were occupied at in the late 1920s-30s (e.g. Ranger enclosure on Petty Mountain). However, these types of fences have not been

documented in Nine Mile Canyon. Fence posts are generally made of juniper because of its abundance and preservation qualities. Fence rails are typically made of some species of pine. Aspen is mentioned in several accounts, but it is never clear the type of fence being constructed or how the aspen was incorporated. In the literature, fences are either described by function (drift) or by composition (brush, barbed wire). Generally, in the literature if a fence is described by function there is no compositional description and vice versa. Fences are sometimes mentioned as part of a larger site, but have rarely been recorded or described in any detail.

Rock walls exist throughout the canyon (Photo 3). In some instances Ray Matheny (personal communication, April 2008) or Blaine Miller (personal communication, July 2009) have identified particular sections as dating to the historic period. In certain cases the walls crossed paths or created a barrier between terraces that would have helped restrict cattle egress. In other locations the purpose of the wall is enigmatic and does not appear to correspond to any herd management practice. A few rock walls have been documented in the canyon. Generally these have been categorized as prehistoric walls (42Cb612, referring to a wall on 42Cb613), but with little information on how this conclusion was reached. However, 42Dc1090 and 42Dc2272 are two rock wall sites that were recorded as historic drift fences. They are about a meter high (1.47 to .82) and 18 to 3.7 meters long. The fences use cliffs, boulders and other natural features to supplement their construction. A systematic approach needs to be developed to document these features and help determine whether they are prehistoric or historic.

Historic refuse Historic refuse are materials such as glass, metal, nails, ceramics, fabric, leather, wire, tin cans, wood, rubber and ammunition that is consistent with the period of significance (1886-1936). The refuse may either be the only evidence of human activity or be associated with other property types. 42Cb1012 is an example of historic refuse as the only indication of past activity. It is a historic glass and can scatter that consists of aqua and amethyst glass and cans with crimped side seams. Although these trash scatters can be ascribed to the period of significance, they often cannot be clearly associated with the transportation route or cattle ranching.

Livestock Management

Most of the livestock management features in the area have never been documented or even mapped and are only briefly mentioned in the sparse oral accounts. Most surprising is that Nutter's Ranch has not been formally documented. Bill Barton (1972) talks about building pasture fences at Pine Spring, where the rim rocks made up part of the fence and the rest were composed of cedar posts, aspen poles and heavy net wire. Bailey (2004) notes the corrals cowboys used were often improved "Indian or outlaw" corrals. These features are a significant aspect of the grazing story and the clearest evidence of their organization and development is their physical remains. Until these can be fully documented we cannot have a clear understanding of their abundance and condition.

Some sites, like the ranch complex are clearly associated with Preston Nutter. Some of the other stone and wood fences, corrals, range cabins, and cattle camps in the area may also be connected with Nutter.

Ranches and homesteads See "Homesteads" under Nine Mile Canyon road property type (Section F, pp. 54-55)

Campsites Campsites in Nine Mile Canyon were temporary residences used by livestock herders during grazing seasons. They do not have the development of homesteads (e.g. out buildings, ditches). Some examples of campsites are line cabins, lean-tos and campfire rings with historic refuse. Line cabins are solitary; generally one-room cabins made of pine or aspen and often associated historic refuse. Bailey (2004) notes the Nutter cowboys had small cabins dispersed throughout the Nine Mile Canyon, Range Creek, Willow Springs and Pine Springs and that anyone who needed shelter could use them. Cabins from this era were built in relatively the same manner and it is difficult to discern a homestead cabin from a line cabin. For example, 42Cb209 and 42Cb211 are solitary cabins but the proximity to Nine Mile Canyon road lends them to be homestead cabins. Bailey (2004) notes that Nutter's cowboys camped wherever they stopped so line cabins should be located near grazing routes and areas. Line cabins will often be a higher elevations or other areas where homesteading was not practical. They are usually single cell log cabins, often with dirt floors. They will also generally have few or no outbuildings, cellars, ditches, farming equipment and other features typically found at homesteading sites.

Lean-tos are less formal in their construction and can be erected more quickly than cabins. They are also often built of logs, however, some have rock foundations and associated historic refuse. As with cabins, there is not much variation in style and this makes it difficult in determining whether they are associated with the Nine Mile Canyon road, mining, hunting or livestock management.

An example of a type of campsite is 42Dc682 which consists of a campfire ring with a historic artifact. The solitary location is more typical of a livestock herder campsite. The Ashley National Forest has recorded a number of these campsites on the northwest Tavaputs. These camps have an abundance of tin cans, glass, wire, utensils, coffee pots, and other items that typically date to the early twentieth century. The majority of camps are in canyon bottoms.

Fences Many of Nutter's hands mention building fence of various materials and for a variety of reasons. Wire net, cedar posts, and aspen logs for pasture areas, rock walls to keep cattle in Nine Mile Canyon, drift fences to keep cows from going up or down a canyon, and brush and timber temporary corrals to hold horses and cows overnight (Bailey 2004). Bill Barton (1972) at times worked for Nutter and described one instance where he worked several days to develop a path for a wagon loaded with wire net fencing to travel about 15 miles to a location on the West Tavaputs where a pasture was created using the fencing material. For a description of fences, see "Fences" under Nine Mile Canyon road property type (Section F, pp. 54)

Corrals Although common on homesteads, corrals were vital to the ranching industry. Bailey (2004) states that Nutter liked to corral his cattle in the bottom of canyons because it was easier to keep them

together. Several of his hands and Forest Service accounts mention fenced pastures in upland settings. These were probably made of a variety of materials and may often appear to just be fences. For a more complete description of corrals, see "Corrals and Pens" under Nine Mile Canyon road property type (Section F, pp. 54)

Cairns Cairns are survey markers used by sheep and cattle herders. They are typically made of unshaped, dry-laid sandstone slabs and placed in highly visible places such as the cliff edges. Historic cairns will generally not have a large amount of lichen on the outside surfaces of stones or soil deposition between the rocks. The cairns may have places where slabs are place atop a visible lichen patch of another slab. On prehistoric cairns covered lichen will have died and fallen away from the rock. Although the sites are listed as prehistoric, examples of historic cairns can be found at sites 42Cb780-782, where these are the only features. All three are located at cliff edges and all but one (42Cb780) have collapsed.

More research is needed to decipher if Preston Nutter's cowboys used cairns when herding cattle or if sheep herders are responsible for their construction. Generally Nine Mile was considered cattle country and if these cairns were constructed by sheep herders this would represent a significant incursion.

Trails Livestock trails in Nine Mile Canyon are a result of cattle or sheep taking the same path year after year. The trails are often switchback trails and at precarious places or steep slopes, herders may have reinforced the trail at certain location. An example of this can be seen at 42Dc696, where the trail runs through a breach in the north face of Nine Mile Canyon. It is lined with a stone wall and there are wooden beams that cross the trail at the top to deter erosion. Another example of an improved trail is at 42Dc2476 where a wooden pole has been spiked into the bedrock and a rock wall adds additional support.

It is difficult to determine whether a trail was incidentally created by livestock or actively developed by the cowboys if no associated features are found. We need a better understanding of how Nutter organized his herds and which routes they were grazed to have an idea of how he used Nine Mile Canyon.

Historic refuse See "Historic refuse" under Nine Mile Canyon road property type (Section F, pp. 57)

Water development Water hole development for cattle was a frequent concern of Nutter. However, no water developments have been recorded in the Nine Mile area. Wooden troughs, old ceramic pipe and other historic features have been noted in northeastern Utah, but typically the water is still valuable today so modern equipment and excavation have replaced or obliterated the earlier evidence. Nutter Spring on the Ashley National Forest has a relatively newly excavated stock pond, and plastic PVC pipe linking a series of modern metal tanks. The only vestiges of the Nutter era are the names, dates, and signatures carved on the aspen trees surrounding the spring.

Narrative Statement of Significance

The Prehistoric and Native American Resources of NMC are significant under Criteria A, C, and D, and has a period of significance dating from ca. 6000 B.C. to ca. 1950 A.D., with a particular emphasis on the Fremont culture florescence from A.D. 900 to 1300. The Historical Resources of Nine Mile Canyon are eligible for the National Register under Criteria A, B and D. The variety and integrity of type sites found within the NMC are eligible under **Criterion A** inasmuch as they are directly associated with broad patterns of Fremont prehistory on the northern Colorado Plateau, with attributes unique to the harsh canyon environments of the Tavaputs Plateau. Sites that have yielded empirical chronometric data are predominantly late Formative (A.D. 900 to 1300) responses by Fremont farmer-foragers to rapid population expansion during a time of periodic and persistent droughts, accompanied by increased competition and conflict over limited resources. These responses, referred to as the "Tavaputs adaptation" (Spangler 2000, 2002), include elaborate strategies to defend local populations and food resources. Although these strategies appear to have been successful for several centuries, perhaps longer, farming as a way of life ceased in NMC and similar drainages on the West Tavaputs Plateau in the mid to late A.D. 1200s, resulting in a dramatic, if not total depopulation of the region. This abandonment mirrors a population dynamic observed elsewhere in the Southwest at the same time. Sites reflecting these events constitute a significant contribution to an understanding of the emergence, florescence and decline of the Fremont culture on the northern Colorado Plateau, as well as to an understanding of late Formative adaptations occurring simultaneously throughout the greater Southwest. The Canyon's historic period of significance is 1886 through 1936 as the history embodies several of the broad themes in the United States westward expansion including the conflict with Native Americans, development of infrastructure, and the cattle industry.

Nine Mile Canyon historic sites are eligible under **Criterion B** because the canyon was the center of operations for the legendary cattleman, Preston Nutter. Nutter was a prominent individual in Utah and Arizona where his cattle operation was important economically, but his influence extended to Washington DC and as a result nationally because of his input on grazing policy and the Taylor Grazing Act.

The NMC is also eligible under **Criterion C** inasmuch as it features remarkable and extraordinarily ubiquitous examples of prehistoric and early historic aboriginal rock art that embody distinctive characteristics of different styles, periods of time and methods of construction. Many of these rock art sites possess high artistic values, although the vast majority represents a significant and distinguishable catalog of images whose components lack individual distinction. NMC also features an abundance of late Fremont residential architecture, defensive and perhaps ceremonial structures, storage facilities and other structures of unknown utility (e.g., cairns, small stone circles on canyon rims). This architecture was facilitated by an unlimited abundance of natural sandstone slabs well suited for construction purposes that resulted in spectacular and well preserved architectural examples not found in the Fremont culture region outside of the Tavaputs Plateau. The distribution of architectural sites throughout NMC is an integral part of the "Tavaputs adaptation" as it relates to community organization and economic utilization of arable lands, permanent water and pinyon-juniper resources. Sites

within the district constitute some of the finest examples of Fremont architecture on the northern Colorado Plateau.

The area is also eligible under **Criterion D** inasmuch as research conducted here has made significant contributions to an understanding of Fremont culture prehistory on the northern Colorado Plateau. Indeed, resources found within the district contributed to the initial definition of the Fremont culture as distinct from Ancestral Puebloan groups to the south, and in the emergence of the modern Fremont "farmer-forager" concept. The district has yielded and is expected to continue to yield information as it relates to Community Planning/Development, Social History, Architecture, Agriculture and Ethnic Heritage. Current research into prehistoric climates in the district and in surrounding areas will offer new perspectives on agricultural subsistence in arid climates, human responses to periodic and persistent droughts, population aggregation and dispersal, and the relationship of climate change to warfare and defensive strategies. It is also anticipated that future research within the district will define a robust utilization of the district by Archaic hunters and gatherers, the emergence of semi-sedentary agricultural lifeways during pre-Formative times (A.D. 200 to 600), and a florescence of farming during early Formative times (A.D. 600 to 900). It is also anticipated the district will contribute important insights into the abandonment of agriculture and the exploitation of area by Numic-speaking hunter-gatherers whose archaeological imprint appears after A.D. 1300. These periods of time are represented in archaeological records of NMC, but the quantity of sites is statistically small in comparison to late Formative manifestations. The Historic Resources are eligible because many aspects of the historical occupation was never captured in written documents, so individual homesteads, grazing features, and other information can only be gleaned through a careful documentation of the archaeological evidence.

Criterion A:
Prehistoric Development of Nine Mile Canyon

NMC contains some evidence of Archaic hunting and gathering, Basketmaker-like farming and foraging, and early Formative farming and foraging, based on the unique attributes of some rock art symbolism, the presence of distinctive projectile points and a limited amount of chronometric data. Likewise, there is some empirical data of post-Fremont adaptations in the region, primarily distinctive Ute (or ancestral Ute) artifacts and rock art, and a limited number of radiocarbon dates. Collectively, pre-Formative and post-Formative data constitute a relatively small percentage of the overall sites represented in NMC.

The vast majority of the empirical data (sites yielding radiocarbon and tree-ring dates) are indicative of unique adaptations that occurred during late Formative times, or about A.D. 900 to 1300. Dubbed the "Tavaputs adaptation" (Spangler 2000), this period of time was characterized by rapid and unprecedented population increases, distinctly defensive architecture that incorporated the natural topography, and an absence of a significant ceramic tradition typical of Fremont farming communities elsewhere. The development of a complex storage strategy, also defensive in nature, could be indicative of dependence on cultivated foods, in particular maize, although this has recently been called into question (Matheny 2005).

The period of time from A.D. 900 to 1300, commonly referred to as Pueblo II and Pueblo III, was a time of considerable sociopolitical stress throughout the Greater Southwest. The first half of this period was a time characterized by favorable climates and population expansion. The latter half is typically described within the context of periodic and persistent droughts (Benson et al. 2006) and a concurrent increase in sociopolitical stress (LeBlanc 1999; Turner and Turner 1999). This resulted in violent conflict that resulted in defensive responses across the Southwest, including NMC with its large drylaid masonry towers or "forts" on rock outcrops and pinnacles with commanding views. It may also have incorporated an elaborate system of intra- and inter-canyon communication (Spangler 2002).

This defensive adaptation appears suddenly and without precedence in NMC. The paucity of radiocarbon or tree-ring dates prior to about A.D. 900 and a comparative abundance of dates after that time suggests a rather sudden appearance of Fremont horticulturalists in the region, perhaps due to migration from the San Rafael region to the south. It is also possible that the sudden occupations in Nine Mile represent an expansion or migration of Fremont peoples from the Uinta Basin, although Uinta Basin traits (e.g., jacal residential structures with adobe features, Classic Vernal Style rock art, limestone-tempered pottery) are not common.

Madsen and Simms (1998:309) have argued for an apparent breakdown in the Colorado River ethnic boundary after about A.D. 1000 that resulted in occupations north of the Colorado River being indistinguishable from those to the south. In the Tavaputs Plateau, these changes were associated with a defensive posture involving both protection of people and the protection of stored resources, suggesting a level of competition not evident in other Fremont areas. Given the complexity and radical nature of these changes, it would be expected that it involved the movement of substantial numbers of people, as well as ideas and trade goods.

The Tavaputs adaptation, therefore, may be a "switching" behavior engaged in by San Rafael Fremont peoples to the south when conditions warranted. If the Tavaputs adaptation represents a population shift from the San Rafael Swell to a new residence, it would be expected that Tavaputs ceramics would be made from local materials, as is the case throughout Utah.

> *In fact, the dominance of exotic ceramics [apparently basalt temper] suggests a logistical connection to the San Rafael Swell area, a pattern where vessels manufactured to the south were brought in relatively small quantity to the Tavaputs sites when the defensive regime was operating. This is consistent with the relative infrequency of ceramics, little evidence for local manufacture, the slightly higher presence of Anasazi trade wares, and the rarity of ceramics at Tavaputs Plateau forager sites [Madsen and Simms 1998:309].*

Additional lines of evidence point to increased social stress and conflict late in Fremont times. A burial from lower NMC yielded an arrow point from the chest cavity of a child (Thompson 1993). The appearance of unusually large structures implies increased social complexity beyond the nuclear or extended family, perhaps reflecting population aggregations of non-kin-related groups for mutual protection. Reagan (1931a) reported two

human scalps from a site in NMC, and although speculative, the rock art symbolism evident in NMC is also indicative of social conflict and/or influences from the Southwest that suggest a deterioration of ethnic boundaries. Warfare is implied at scenes depicting shield-bearing figures holding spears, bows and arrows, clubs and possibly scalps or heads, and those of warriors engaged in apparent combat (Lowendorf 2004). And the appearance of "horned snakes" in the pantheon of rock art images could be indicative of influences emanating from the Four Corners region (cf. Turner and Turner 1999:465-471).

The sociopolitical conflict evident in the late Formative in NMC and elsewhere on the northern Colorado Plateau occurred within the context of major climatic changes, in particular the persistent droughts that plagued much of the western United States. In particular, three droughts, one in the late A.D. 900s to early A.D. 1000s, another in the mid A.D. 1100s and another in the late A.D. 1200s, appear to have had pan-regional impacts. The first drought coincided with dramatic population declines among the Fremont living in northeastern Utah and the eastern Great Basin, and the appearance of defensive strategies in NMC. The second resulted in the abandonment of most of the great houses in the central San Juan Basin, and in population declines throughout the Southwest, including NMC. The third drought resulted in the abandonment of remaining Anasazi and Fremont population centers, including the last remnants living in the Tavaputs Plateau, beginning about A.D. 1280 (Benson et al. 2006).

The effect of these droughts on Fremont populations is poorly understood, and population expansion and contraction was not synchronous across the entire Fremont region. Population declines occurred in the northeastern Great Basin at A.D. 1050, 1160 and 1290 (Berry and Berry 2003), and in the Uinta Basin by about A.D. 1000 (Spangler 2002). Based on radiocarbon frequency curves for the greater Uinta Basin, which includes NMC, there appears to have been an overall population decline that began during the drought of the mid A.D. 1100s, the same time when defensive responses were evident in NMC. A persistent drought in the late A.D. 1200s may have had little effect on areas that were already largely depopulated, but it may have proved a death knell for remnant Tavaputs populations in NMC where the latest radiocarbon dates occur during the middle-to-late A.D. 1200s.

> *The precipitation-dependence of these groups appears to have brought about their demise. In the middle-thirteenth century, an intense and persistent drought occurred that affected much of the contiguous United States. This lead to massive habitation-site declines in the Four Corners area, and in Utah and surrounding areas; e.g., 85 percent of the great houses in the Four Corners region were abandoned and some of the Fremont horticulturalists left the Tavaputs Plateau [Benson et al. 2006].*

The Tavaputs Plateau temporal sequence contrasts sharply with that described for the nearby Uinta Basin, where a relatively continuous occupation of permanent residential sites, all focused on the production of domesticated food crops, can be demonstrated from about A.D. 200 to 1050. A similar temporal sequence is likely in NMC, but it is currently underrepresented by empirical data. Most NMC residential sites have yielded radiocarbon dates with median intercepts tightly clustered between about A.D. 1025 and 1175. Based on an analysis of tree-ring dates, Schulman has argued that ruins in NMC carried construction dates in the 950s, 1060s and 1150s (1948:14).

The florescence of a unique Fremont adaptation after A.D. 900 throughout the environmentally marginal Tavaputs Plateau and a subsequent reduction in radiocarbon dates in the Uinta Basin by A.D. 1000 present intriguing possibilities. It could be hypothesized that Fremont peoples migrated from the Uinta Basin into the northern Tavaputs Plateau drainages beginning about A.D. 950, and that this migration may have been accelerated by conflict with hunter-gatherers or unrelated groups from the south. The defensive orientation of many Tavaputs Plateau sites could be interpreted as refuge behavior reflective of these ongoing conflicts. This scenario is supported by the appearance of side-notched projectile points, an event concurrent with the arrival of Numic-speaking peoples, in Uinta Basin archaeological contexts after about A.D. 1000 (Leach 1970).

Collectively, the data from NMC argue for a Fremont adaptation uniquely suited to the deeply incised canyons of the Tavaputs Plateau. This adaptation was likely present prior to A.D. 900, but became conspicuous in the archaeological record after that time with the addition of large masonry architectural structures -- a phenomenon extremely rare among Fremont peoples living north of the Colorado River. The florescence of the Fremont culture in this region was likely influenced by concurrent adaptations in the Uinta Basin and San Rafael Swell, but it is spatially and temporally distinct and is reflective of the unique environmental attributes of the plateau generally and NMC specifically.

Data from NMC present an array of perplexing problems that cannot be answered with traditional explanations of farming versus foraging or migration versus *in situ* accretion of agricultural technologies. High mobility is suggested by the sparse middens and near-absence of a ceramic tradition. Periodic abandonment is suggested by complex storage and caching strategies. But there is, as yet, no convincing evidence of a concurrent forager adaptation in the region (although this is likely a function of sampling bias). A late spring, summer and early fall occupation was suggested by the minimal evidence of hearth features, but it remains unresolved where farming populations passed the colder months, although nearby Range Creek Canyon, a sister drainage to the south of NMC, has recently emerged as a possibility.

Another possibility is that NMC was only sporadically occupied by the Fremont, and that maize farming was only an ephemeral activity. Matheny et al. (2004) have argued that hunting of bighorn sheep is the dominant hunting activity depicted in the rock art of the canyon drainage. Of the 163 rock art scenes they examined that depict hunting activities, bighorn sheep are depicted 1,395 times, elk 78 times, bison 20 times, deer five times and birds two times. Several hunting scenes depict bighorn rams, ewes and yearlings together, which occurs only once a year during the rut in the late fall; ewes and lambs being hunted; bighorn sheep shown in hierarchical order of large rams first with smaller rams behind; and bighorn sheep engaged in dominance behavior (Matheny et al. 1997). Fremont hunting scenes often depict anthropomorphs with outstretched arms driving bighorn sheep toward archers with arrows pointed at oncoming animals; canines driving animals toward hunters; and utilization of winged drive structures, enclosures and nets, all of which have been documented in ethnographic contexts in the Great Basin.

Matheny (2005) has further argued that the rock art of NMC, dominated by hunting scenes, is indicative of a socioeconomic system that extends far beyond NMC, and that it may indicate that Fremont peoples exploited

NMC primarily for animal products that were exported by systematic hunting expeditions utilizing nets, dogs and ambush strategies, primarily during the late fall and early winter. The depiction of rows of individuals carrying large packs (referred to as "burden bearers") is indicative of human transport of procured meat, and the predominance of these figures at the mouths of side canyons that offered access to the highlands is indicative of trade routes where the acquired faunal resources would be transported for trade to sedentary groups for winter consumption.

> *Organized burden bearers in Nine Mile Canyon and their association with bighorn sheep suggest a specialized quest for high-rank animals. Elk and deer and a stray bison may be fortuitous game taken during the specialized hunt for bighorn sheep. The evidence here negates the down-the-line model where trade goods moved from individual to individual as an explanation for the rock art. Instead, the evidence fits a larger trade network model not yet formulated for the Fremont involving procurement expeditions, perhaps by professional traders, and possibly by villages with controlling sociopolitical organizations [Matheny 2005:14].*

It cannot be stated whether the hypothesis (Matheny et al. 1997, Matheny et al. 2004; Matheny 2005) was exclusive of the refuge behavior described above, or whether it was concurrent with it. Most data from the region suggest the period from about A.D. 900 to 1300 was a time of tumultuous change to previously stable Fremont farmer-forager traditions that evolved within the limits of specific environments. Current data shed little light on whether these changes were prompted by environmental factors that precipitated conflict with foragers for limited resources, or competition with migrating groups of farmers encroaching from the south. It appears, however, that protection of humans (creating refuges on inaccessible outcrops) and protection of resources (complex caching strategies) assumed paramount importance after A.D. 900. It is probable that the refuge behavior evident in NMC is related to broader patterns of human behavior across the greater Southwest at the same time (cf. LeBlanc 1999).

Summary Collectively, the sites found within NMC reflect many millennia of human adaptation to an arid canyon environment. This adaptation had its roots in the Archaic when transient groups of hunter-gathers occupied favorable rockshelters during the course of plant collection and processing, hunting of locally available bighorn sheep and elk, and the procurement of raw materials for tools. Occupation during the Archaic was probably never intense, but Nine Mile Creek was a consistent and predictable source of water that would have made it favorable for hunting and gathering during even the most severe droughts. Temporary, seasonal occupation characterized the utilization of the canyon through about A.D. 300 when small groups of farmer-foragers began occupying the canyon for longer periods of time, exploiting the floodplains for cultivation of small plots of maize. Horticulture would have mandated a greater degree of sedentism, including the construction of semi-permanent residential structures and storage facilities. The utilization of the canyon by small numbers of proto-Fremont farmers was likely seasonal, and would not have encroached upon traditional hunting and gathering activities. Farmer-foragers likely became increasingly sedentary, as evidenced by the appearance of ceramics about A.D. 700.

Beginning about A.D. 900 or shortly thereafter, NMC experienced a rapid and unprecedented population growth, perhaps from Fremont groups living in the San Rafael Swell and Uinta Basin, or perhaps even groups from the San Juan River Basin. This population growth was coequal with an elaborate adaptive strategy focused on the protection of humans and food resources. This refuge behavior, uniquely adapted to the canyon topography, persisted until about A.D. 1300 when the last evidence of farming disappears from the region. The vast majority of archaeological evidence in NMC is attributed to the Tavaputs adaptation. The appearance of hunter-gatherers after the abandonment of horticulture may simply be evidence of an abrupt change in lifeways by Fremont farmers who reverted to hunting and gathering, or it could reflect the arrival of a new ethnic entity, the Numic-speaking ancestors of modern Ute Indians, who continue to view NMC as an ancestral homeland.

Historic Resources The two topics that will be the focus of the historic theme are the Nine Mile transportation route and cattle ranching, especially that of Preston Nutter. The period of the historic theme for the National Register nomination is from 1886, when the military constructed or improved the road through the canyon, to 1936 with the death of Preston Nutter. Since fur trapping and Western exploration are peripheral to the canyon history, left no known traces, and because the visits to the canyon were such a minor aspect of the overall expeditions, it does not seem appropriate to develop a theme for them in this National Register nomination.

Fur trappers, including William Ashley, may have briefly explored the canyon on or before 1825. However, the evidence is tenuous and recently an 1818 canyon inscription has been shown to be an altered 1918 inscription (Photo 27). John Wesley Powell is the most notable Western explorer to camp in or near the canyon during his 1869 and 1871 Green River expeditions. However, these initial sojourns were brief and not a significant part of the canyon history. Spangler and Spangler (2005:15-24) documents a plethora of well-known archaeologists who explored, often hastily, the canyon. The list includes such notables as the Peabody Museum, Albert Reagan, Byron Cummings, Noel Morss, and Julian Steward. Their history, research, and contributions seem most appropriately described in the sites they studied which are captured in the rock art and West Tavaputs Adaptation themes of the nomination. The homesteading history of the canyon is very often undocumented, unknown, or inadequately researched. Many of the families were poor, made no documented claim on their land, and did not stay in the canyon very long (Spangler and Spangler 2005:91-96). Most of the homesteading history that is known can be encapsulated in the story of the Nine Mile Road.

Nine Mile Canyon is associated with some of the key events in the United States' westward expansion to qualify under Criterion A. The conflict between Native Americans and European immigrants was a centerpiece of the westward expansion and Nine Mile Canyon's history. Nine Mile's history revolves around the development of the infrastructure such as roads, railroads, telegraph, and telephone that facilitated the settlement of the West. Transportation and US policy towards Native Americans are linked in Nine Mile Canyon because individuals involved in the land rush for Ute reservation lands were funneled through the canyon. Nine Mile Canyon highlights the importance of the livestock industry in the region. The local history epitomizes the boom and bust cycle of resource exploitation played out over and over again throughout the West. There are enough elements of hardship, individualism, outlaws, and other marginal elements of society

for some individuals to elevate aspects of the canyon's history into a classic tale of the mythical Old West. However, the stories are much more complex and nuanced than stereotypical constructs depict.

Criterion B:
Preston Nutter

Nine Mile Canyon historic sites are eligible under Criterion B because the canyon was the center of operations for the legendary cattleman, Preston Nutter. Nutter was a prominent individual in Utah and Arizona where his cattle operation was important economically, but his influence extended to Washington DC and as a result nationally because of his input on grazing policy and the Taylor Grazing Act.

Although a few of the line cabins and corrals in the region can be associated with Nutter's cattle operation (Bailey 2004), many of the livestock management features have no clear association. The local fences, corrals, cabins, and camps are considered eligible for the National Register even if they are not clearly linked to Nutter because they are still eligible under Criteria A and D. The cattle industry was one of the more important economic activities in the Western expansion. Utah Mormon leaders encouraged particular types of development that fostered cooperation and long term community growth like farming, irrigation, grist mills, etc. while discouraging what were considered speculative or selfish endeavors like mining and open range practices. As a result, large cattle barons, common in the rest of the West, were rare in Utah. Nutter was a classic Western cattle baron who aggressively expanded his operation through shrewd business practices, legal maneuvering, and occasional threats of violence, although no documented instances of actual violence exist.

Criterion C:
Prehistoric Rock Art, Architecture and Structures

The prehistoric rock art, architecture and structures found through the entire length of NMC are remarkable for their extraordinary numbers, artistic qualities and archaeological integrity that remain largely intact despite generations of modern agriculture, oil and gas development, pipeline construction, water control efforts and artifact collecting. These sites include pristine rock art panels, largely intact granaries and collapsed pithouses that contain the archaeological record of their prehistoric inhabitants. The size and quality of these resources varies greatly across the archaeological district, with some sites seemingly small and insignificant and others large and aesthetically impressive. Collectively, these sites reflect indigenous utilization of an entire environmental landscape for food procurement and production, the manufacture of tools and utilitarian items, residential activities, storage, self-preservation and individual expression. Although many of the sites in NMC are individually significant, all prehistoric resources found here are eligible inasmuch as they constitute a significant and distinguishable cultural entity whose components may lack individual distinction.

Rock Art The walls of NMC have been a canvas for indigenous American artists for as many as 8,000 years and for groups with disparate cultural affinities to the Great Basin, Great Plains and Southwest. More than 600 sites with rock art have been formally documented, many of which have multiple panels. Archaeologists estimate the

number of archaeological sites in the canyon at several thousand, of which about 80 percent would likely have rock art components. In fact, the sheer number of rock art sites, many with multiple panels at each site, makes the district one of the densest concentrations of rock art anywhere in North America.

Native American rock art has long captivated the non-indigenous public, which has come to view the images as "powerful, mysterious, important, perhaps even mystical" (Young 2004:79). Many see in the images a pan-regional language or system of visual symbols that allow communication between disparate groups, and yet others see repetitive symbols as central to the human subconscious that have the same meaning across time and space. Others see rock art as representative of specific events important in the lives of its creators, astronomical phenomena, calendars, religious ritual and even prehistoric graffiti. Reputable scholars agree that it is difficult to assign objective meaning to images created by groups of people with widely divergent experiences and perceptions, especially if the rock art was created by prehistoric peoples with no clearly defined historic descendants from whom ethnographic analogies can be posited. Even when historic descendants can be identified, "the motivations of prehistoric rock artists were likely entirely different from those of today's artists. Moreover, certain design elements may have changed through time, or, where they have not, their meanings may have altered" (Young 2004:85).

The thousands of individual rock art images found throughout NMC are eligible under three of four standards defined for Criterion C. They unequivocally embody characteristics of type, period and method of construction; and they also represent a significant and distinguishable entity with components that may lack individual distinction. Furthermore, many of the sites exhibit high artistic values, featuring exceptional composition, detail and stylistic elements not found in any modern art style.

The abundant rock art of NMC has been studied primarily within the context of organizing the images by styles that have been assigned to temporal periods and to areas of geographic influence (cf. Cole 1990, Schaafsma 1971). Based on these styles, the earliest rock art in the canyon is Glen Canyon Style 5 (6000 to 2000 B.C.), originally defined in the Colorado River corridor but found throughout western North America (Turner 1963). At least two Glen Canyon Style 5 sites are located in the district, 42Dc169 and 42Dc211, suggesting that Archaic hunter-gatherers with a rock art tradition shared across much of the West occupied NMC at least long enough to execute the images. As discussed above, an unrecorded rock art site between North Franks Canyon and Desborough Canyon was executed in a classic Basketmaker style (A.D. 1 to 600), suggesting that some Basketmaker farmers may have ventured north from the Four Corners into NMC in pre-Formative times.

Other styles also offer important clues as to the movement of individuals or small groups across the prehistoric landscape. Manning (1994) has shown that several images previously believed to be unique to the Dinwoody region of northwestern Wyoming also occur in NMC, albeit in one location. The near identical form, configuration and situation of these images indicates that individuals traveled from the Dinwoody area to NMC. Given that Fremont-style figures are pecked over Dinwoody figures and are less patinated, it can be hypothesized the Dinwoody peoples passed through the canyon prior to the florescence of the Fremont (A.D. 900 to 1300). Rock art executed in a unique, region-specific style (e.g., Dinwoody, Basketmaker) is significant

because it offers exceptional material culture evidence of prehistoric movements of people from one region to another, helping to explain socioeconomic relationships through time. The small numbers of sites with distinctive rock art styles suggests these relationships were infrequent or of short duration.

The majority of prehistoric rock in NMC has been assigned to a category labeled "Fremont," a remarkably uniform style that exhibits subtle stylistic differences across time and space. The uniformity of this style of rock art suggests that Fremont peoples north of the Colorado River, including NMC, shared a similar ideology. This is evident in the consistent creation of large anthropomorphs with uncannily common features that exhibit identical methods of construction, despite the broad spatial distribution of the images (Manning 2003). The degree of variation in these common images shows to what degree the ideological concepts were constrained or not constrained, and the degree of divergence from a common norm appears to be an indicator of the degree of contact between people living in diverse regions. The Fremont rock art of NMC clearly shares stylistic similarities with that of the San Rafael Swell, and to a lesser degree the Uinta Basin.

Ute rock art constitutes a major portion of panels found in NMC, second only to Fremont figures, and it consists mostly rock art with stylized images of owls, bears, mountain sheep, buffalo and elk that are similar to Ute panels elsewhere in Utah and Colorado. It cannot be stated when a Numic rock art tradition appeared in NMC, or whether it had its origins in earlier Fremont rock art. It is certain the Ute rock art tradition continued through historic contact. Many of the sites depict horses, an indication of the Ute transition to equestrian lifeways after the introduction of horses to New Mexico in 1597. It is likely that the Utes obtained knowledge of the horse by about 1637 (Forbes 1959:200). NMC features numerous panels depicting horses with riders engaged in hunting activities.

Many, if not most, of the rock art images in NMC possess high artistic values that reflect an exceptional skill that involved painting and pecking on open faces of rock with a precision and technique that produced images that survived hundreds, perhaps thousands of years. The images possess an abstract and artistic form unlike anything created today. The images appear to have been made by individuals intimately familiar with the professional techniques involved, and they exhibit a consistency in form, a level of skill in their creation and knowledge about specific construction techniques that demonstrate they were the product of knowledgeable, skilled and practiced artisans. This implies that every aspect of these images, especially their creation, was of major consequence in the prehistoric societies where they were created. Sites exhibiting high artistic values are too numerous to catalog, and such an effort would be highly subjective. Representative examples of the best rock art sites, all of which have been featured in dozens of articles and in commercial designs, include the world-famous "Great Hunt Panel," the Sheep Canyon Pictographs, Warrior Ridge, the Sandhill Crane panel, the Family Panel, the Pregnant Buffalo and the Owl Panel.

The Great Hunt Panel (42Cb339), located just inside the mouth of the Cottonwood Canyon tributary, is arguably the most famous rock art site in NMC, appearing in countless magazine and newspaper articles, as logos on clothing and on book covers. Aesthetically, the panel is remarkable for its precise execution and elaborate composition that includes at least 30 bighorn sheep and eight anthropomorphs configured in a pattern that has

been interpreted as a communal hunt (Photo 47). Matheny et al. (2004) have noted the aggregation of rams, ewes and lambs only occurs during the late fall or early winter, and that this panel is indicative of a formalized hunt at that time. A large Fremont anthropomorph in the center of the composition and archers at one periphery have been interpreted as a depiction of an ambush hunting tactic.

The Sheep Canyon Pictograph (42Cb11), located just inside the mouth of the Sheep Canyon tributary, remains one of the most pristine panels anywhere in the canyon (Photo 29). Painted in vivid red and white, the panel has intrigued rock art scholars for its unusual style that appears to be Fremont, but with elements of an earlier style, perhaps Barrier Canyon. The site consists of four large anthropomorphs that display "the extreme elongation of the torso, tiny arms and the usual horizontal band decoration characteristic of the Barrier Canyon Style figures" (Schaafsma 1971:79). But other features, such as short curved horns, are characteristic of Fremont figures. These figures are seen as potential evidence of a transition between Barrier Canyon Style, executed by hunters and gatherers, and Fremont styles, executed by farmers and foragers.

Warrior Ridge (Photo 65) is noteworthy because of its immense size, stylistic composition and subject matter. The unrecorded site, located along several dozen meters of cliff face on a ridge high above the valley floor in middle NMC, contains a detailed depiction of conflict between individuals. The site contains at least 19 separate panels with 97 individuals engaged in combat, most of them wielding bows and arrows, clubs or staffs. No other site on the northern Colorado Plateau contains as many images in apparent combat, or the complexity demonstrated by the arrangement of the figures.

The Sandhill Crane panel, also unrecorded, is a remarkably complex composition at the west side of the mouth of Currant Canyon (Photo 17). It includes two long-legged, long-necked birds connected at the breasts with a solid line, above a third bird that appears to be sitting. The birds are above what has been interpreted as two parallel hunting nets, between which is a bighorn ram. The west side of the lower of two nets terminates to the left of a bighorn sheep's head, while the east side wraps around the natural corner of the sandstone outcrop, thereby emphasizing the size of the net. A human shield figure is depicted as behind the net. The panel depicts dozens of other images, including additional bighorn sheep, anthropomorphs, canines, a spiral, a snake, abstract elements, lines and portions of additional nets connected by zigzag lines (Matheny et al. 2004:176).

The Family Panel (Photo 28) is among the most recognizable; most visited sites and most publicized sites in NMC, having been featured in dozens of publications, including the prestigious *Cambridge Illustrated History of Prehistoric Art*. The site consists of a linear alignment of individuals and animals that are popularly interpreted as a nuclear family. In reality, this panel may be a hunting scene consisting of two shield figures on either side of the composition. Other figures from left to right, include an anthropomorph with a bow and arrow pointed at a bighorn sheep, followed by a lamb, a large Fremont trapezoidal figure at least twice the height of the hunter but without legs, a small Fremont figure also without legs, a larger Fremont figure with a flared lower torso but no legs and an image that looks like a scorpion (Schaafsma 1971:32). This panel exhibits remarkable attention to artistic detail, including facial and torso designs on two anthropomorphs and headdresses, and it is a classical representation of Fremont rock art in the canyon.

The Pregnant Buffalo (Photo 38) is also among the most popular sites anywhere in the canyon, and is part of a series of Ute and Fremont rock art found along the cliff face at the east side of the confluence of Cottonwood Canyon. The scene depicts a large horned bison pecked in outline with a smaller horned bison in the abdominal cavity. Both of the bison have been pecked with exceptional precision in the interior gradient effect style that typifies Ute rock art in NMC. Likewise, the Owl Panel (Photo 39) features the same pecking technique and is commonly attributed to the Ute culture. This elaborate and well preserved panel contains owls, a bear and a bear track, all images similar to Ute panels elsewhere in Utah and Colorado. Both sites are representative of the high quality of many Ute rock art panels found in the canyon.

Architecture NMC contains many examples of habitation sites without public architecture, temporary habitation sites, isolated ceremonial or communications structures, and isolated storage facilities, most exhibiting a distinctive method of construction (these architectural categories are modified from those defined in the Sand Canyon Archaeological District nomination). Open residential sites, isolated walls, rock alignments and cairns typically feature drylaid masonry with unmodified (and locally abundant) stone slabs, whereas sheltered storage facilities feature an abundant use of adobe mortar, horizontal and vertical stone slabs, and wooden beams. Collectively, the distribution of architectural sites within NMC reflect a traditional Fremont culture pattern of dispersed farming communities of one to four families, with occasional small villages of five or more family units.

This settlement pattern was effectively defined by Jennings and Sammons-Lohse (1981) as ubiquitous on the northern Colorado Plateau, consisting of "circular, stone-lined pit dwellings, and the use of coursed masonry and adobe in rectangular surface structures. …San Rafael structures are typically built on low rises near dependable sources of water, with sites generally consisting of one or two dwellings and many associated storage structures" (1981:138). They described a community of isolated homesteads characterized by single-occupation, small-scale settlements. There was no indication the sites were planned in any way, and there were no definable refuse middens.

> *... Site location may well be the result of rational decision making, but structure location within sites follows no discernible pattern. Again, this lack of pattern indicates minimal cooperation or organization within the sites.... The household unit appears to remain the basic element in the organization of social or economic activity. It appears that the Fremont in any area were not organized in village communities [1981:130-131].*

Habitation Sites without Public Architecture At least two settlement patterns have been documented in NMC. One consisted of semi-subterranean pithouses of drylaid masonry construction that were situated on stream terraces 10 to 30 meters above the NMC floodplain. These structures, which occurred singly and in clusters of two or three noncontiguous dwellings, all afforded easy access to permanent water and arable lands, and they appear to have functioned as rancherias or farmsteads (cf. Jennings and Sammons-Lohse 1981). Semi-subterranean pithouse structures located on stream terraces are ubiquitous throughout NMC, from about 7000 feet elevation near the Sheep Canyon confluence to the mouth of Nine Mile Creek. The density of pithouse sites decreases dramatically

below the confluence of Bull Creek, perhaps reflecting decreased availability of arable lands and pinyon-juniper resources (Spangler 1993).

Despite the prevalence of stream-terrace pithouse sites, only two such sites have produced radiocarbon dates, all of which were consistent with occupations between about A.D. 1000 to 1175. These sites appear to have been occupied concurrently with the pinnacle sites discussed later. Site 42Cb770, located near the confluence of South Franks Canyon with NMC, is a complex of three pithouses, an outdoor work area and a deep cist with a burial of a child that died violently. Despite the energy expended in the masonry construction, the structures were interpreted as temporary dwellings because of small fire pits and sparse middens. Most of the pottery fragments, stone flakes, projectile points and charred food remains were found in association with an outdoor work area and ramada structure (Thompson 1993).

The residential structures were semi-subterranean with wall construction of thin stone slabs laid horizontally without any remaining evidence of mud or adobe mortar. The floor of the larger pithouse (labeled Component A) was located about 0.5 meters below ground level. The structure had a north-facing, ground-level entry with a prominent lintel. An identical feature was noted on a second pithouse (Component F) just down-slope. The third smaller pithouse (Component B) had no discernible entryway (Thompson 1993). Associated artifacts included maize, grayware potsherds, groundstone and small stone balls. Charcoal from the living surface of Feature A yielded radiocarbon dates of 980 $\pm$50 B.P. and 980 $\pm$60 B.P. (both A.D. 1025 calibrated). An adolescent burial recovered from a deep, slab-lined cist located below the floor of Component A yielded a radiocarbon date of 880 $\pm$70 B.P. (A.D. 1173 calibrated) (Thompson 1993). This site appears characteristic of a small farmstead situated on a stream terrace with expedient access to the Nine Mile Creek floodplain and with no evidence of a defensive orientation.

Site 42Dc619 was also located on a terrace about 1 kilometer east of Franks Place and adjacent to a modern ranch house. This site consisted of a single semi-subterranean pithouse constructed of drylaid stone slabs and an east-facing doorway. The presence of small, unprepared fire pits and shallow middens implied episodic, perhaps seasonal occupation. Charcoal from this structure yielded a radiocarbon date of 880 $\pm$50 B.P. (A.D. 1173 calibrated), which is consistent with the terminal occupation at nearby 42Cb770. Associated artifacts included Emery Gray and Uinta Gray potsherds, and two black-on-white potsherds (Thompson 1993). This site also afforded immediate access to the Nine Mile Creek floodplain and featured no defensive orientation.

The pattern of locating residential sites in close proximity to arable lands undoubtedly included construction of pithouses on the valley floor, but modern agricultural activities have obliterated most evidence of these occupations. One exception is Valley Village, located on a small prominence next to Nine Mile Creek that is unsuitable for farming (Gillin 1938). During his many visits to NMC in the 1930s, Reagan (1931c) observed no undisturbed earthen lodges, but

> *... from the clay remains of the lodges it would seem that they were wickiup [lattice, wattle-work] houses that were plastered over with mud, probably not much unlike the*

> *earth lodges of certain Western tribes, or for example, the familiar winter hogan of the Navajos, except that they were differently constructed. It was further noticeable, on examining the clay plaster, that the lodges had been destroyed by fire, leaving imprints of limbs, thatch, brush, and poles on the brick-like clay [193c:46]*.

Reagan (1931c) reported that local ranchers had been digging in the earthen lodges on the valley floors since the earliest days of white settlement, making considerable collections of pottery and baskets. The location of these jacal residential structures on the valley floor cannot be determined from Reagan's reports, but it is likely that they were located in the area of the Preston Nutter Ranch in middle NMC.

As discussed above, evidence of a possible valley residential occupation was documented at 42Cb561, a burial site that also yielded evidence of jacal, charcoal, Emery Gray potsherds and portions of a basket (Nielson 1988). Charcoal from this site yielded a radiocarbon date of 1270 ±50 B.P. (A.D. 746 calibrated), making it one of only two radiocarbon dates from NMC not attributed to the late Formative. The presence of jacal may indicate evidence of a temporary residential structure. This site also marks the earliest documented appearance of ceramics in the Tavaputs Plateau region.

A second settlement pattern consisted of complex surface architecture situated on relatively inaccessible rock outcrops up to 200 meters above the floodplain and offering economically inefficient access to permanent water and arable lands. These structures, which appear to reflect a defensive posture, typically occur singly, but occasionally occur in clusters of four or more residential structures with associated rooms, walls, storage features and alignments. These sites may be categorized as small villages. These village sites are often located on isolated buttes with a single, often precarious access that features masonry walls constructed across the access point (Spangler 2002).

The conspicuous surface masonry structures located on rock outcrops and cliff ledges have long intrigued archaeologists, who have speculated that these may have functioned as defensive retreats. Although abundant throughout NMC, only Sky House and Upper Sky House near the Harmon Canyon confluence have produced chronometric data. These sites were located on rock outcrops more than 100 meters above the floodplain, and both featured commanding views of the canyon bottom. Both sites yielded grayware ceramics and maize characteristic of Fremont occupations.

Gillin (1938:22-23) was struck by the "defensive" orientation of Sky House (42Cb1), located about 120 meters above the valley floor, where it was extremely difficult to access. Excavations revealed an oval-shaped, clay-rimmed fire hearth 4 feet 6 inches in diameter in the center of the structure. At a depth of 9 inches was a hard, sterile clay floor covering the bedrock. Around the fireplace were four postholes, apparently central roof supports. The cedar stumps of two posts were found embedded in the hard clay.

An adobe wall measuring 18 inches high was observed in the southeast quadrant, and a second adobe wall was located in the same area but outside the other wall. Just outside the southwest wall, Gillin excavated a cist

constructed of four stone slabs and two adobe walls. The cist contained the complete remains of a female about 30 years of age. The occiput was flattened, and the skeleton was in a flexed position with its head to the northeast. Beneath it was a layer composed of corncobs, squash rinds, seeds, willows, adobe balls, one stone ball, a rectangular slab of sandstone and the broken pieces of two clay figurine-like objects. The body had originally been wrapped in a rabbit-skin blanket. Potsherds were common elsewhere at the site (Gillin 1938:24).

Construction beams reported from Sky House indicated outer ring dates of A.D. 768, 930, 970, 1010, 1055, 1061, 1078, 1086, 1088 (2), 1089 and 1090. Given the absence of outer rings on most samples, the chronology of Sky House remains tenuous. However, the tight cluster of five dates between A.D. 1086 and 1090 strongly suggests a construction date shortly after A.D. 1100. Despite the abundance of carbon materials recovered from Sky House, no radiocarbon dates have been reported from this site.

Upper Sky House (42Cb20) was located on a similar outcrop about 300 meters south of Sky House. This site yielded a similar artifact assemblage, but was poorly described by Gillin. Construction beams yielded outside tree-ring dates of A.D. 892, 1011, 1033 (2), 1051, 1053, 1088, 1089 and 1090. As with Sky House, the tree-ring samples from Upper Sky House were missing multiple outside rings, and a construction date could not be firmly established. However, three outside ring dates of A.D. 1088, 1089 and 1090 corresponded closely with five outside ring dates at Sky House, indicating that both structures may have been constructed shortly after A.D. 1100. This assessment is consistent with observations by Gillin (1938:22) that "architectural details, pottery and other artifacts by means of test diggings show the second and higher site to have been contemporaneous with and similar to the one excavated."

Temporary Habitation Sites An abundance of architectural sites throughout NMC appear to have been temporary habitations, perhaps temporary refuges occupied infrequently. Despite considerable expenditure of energy hauling construction stones up sheer cliff faces, these sites typically feature very little, if any, residential detritus associated with longer-term occupation. Almost all are located in defensive postures on pinnacle tops, mesa tops of difficult access and isolated rock outcrops with a single access point. Because of the paucity of organic materials at these sites, most of which are located on bedrock surfaces, no radiocarbon dates have been reported from these sites. However, the presence of grayware potsherds at some sites suggests these temporary habitations were occupied concurrently with the more permanent late Formative sites elsewhere in the canyon (described above). Examples of temporary habitation sites include Fool's Pinnacle (42Dc681) and Mischief House (42Un1913), both located in the lower third of NMC where residential occupations are more dispersed.

Fool's Pinnacle is located on a prominent pinnacle about 1 kilometer north of the Bulls Canyon confluence and along a major access route into NMC from the Uinta Basin to the north. The site consists of a single, circular stone structure of neatly laid horizontal stone slabs laid to conform to the outer edge of the flat pinnacle top. The structure measures 2.7 meters north-south by 2 meters east-west, and it is 1.35 meters high at its highest point. It features a small square window facing due south onto a wide talus slope below the pinnacle. Access to the top of the pinnacle is possible, but difficult. No artifacts of any kind were observed on the pinnacle top or slope below the site. The paucity of artifacts, the small size of the structure, the distance of more than 1 kilometer to permanent

water and its defensive position atop a pinnacle were all suggestive of temporary occupation or specialized function (e.g., communications, refuge).

Mischief House (Photo59), located in lower NMC about 100 meters above the floodplain, is likewise situated on a large pinnacle top with sheer cliffs on all sides. The only feasible access is by scaling 7 meters of crumbling cliff face above the saddle connecting the pinnacle to the south wall of the canyon. The site consists of three circular or semicircular structures of neatly laid sandstone slabs, one on the northern extreme of the pinnacle top with views up and down the canyon, one in the center and one on the south edge just above the saddle. Component A on the southern edge is semicircular with up to 20 courses of stones reaching 1.4 meters high and 0.45 meters thick. The enclosure is 2.5 meters in diameter. Component B in the center is circular, measuring 4 meters east-west by 3.5 meters north-south. There is a doorway on the northwest side of the structure, which has standing walls up to 1 meter in height. Component C on the north is an oval structure measuring 3.6 meters by 2.9 meters, and featuring standing walls up to 0.6 meters high. The only artifacts observed were a few lithic flakes near Component C.

Mischief House, situated in a distinctively defensive posture, contains two other features common in isolation elsewhere throughout NMC. Feature D, located on the northwest edge of the pinnacle, is a small circle of drylaid stone slabs measuring 1.2 by 1 meters, with walls standing up to 0.8 meters high. These small circular structures, always located on cliff edges with views up and down the canyon, may be part of a communications system, although their utility remains speculative. Feature E is a partially collapsed stone cairn measuring about 1 meter in diameter and standing 0.8 meters high that was located near the north edge of the pinnacle. Likewise, cairns are always located on cliff edges with commanding views of the canyon. All of the structures are easily visible from a distance, but are extremely difficult to access. No storage, rock art or residential detritus was located on the pinnacle or the slope below, suggesting this site was the focus of temporary activities, perhaps for refuge or communication. The number of structures implies that it was utilized by more than a single family unit, perhaps two or three families or a large extended family.

These sites are typical of temporary occupations, probably during episodic threats that warranted retreats into defensible positions. It is speculative to assign these sites to the late Formative, given the paucity of diagnostic artifacts and the absence of chronometric data, but the architectural style and presence of small numbers of grayware potsherds on some of these sites would support this hypothesis. For example, the Shroom Room (42Un1918) is a temporary occupation with a large drylaid stone structure atop a mushroom-shaped pinnacle in lower NMC. Four Fremont grayware potsherds were observed on the slope below the structure, although artifacts were generally rare. If these sites were indeed defensive retreats, it is probable they were utilized for extremely short periods of time when the occupants were not engaged in routine activities.

Isolated Ceremonial or Communications Structures NMC contains a variety of sites that may have functioned as communications structures, and at least one site (42Dc5) that may have functioned as a ceremonial locus. Preservation of 42Dc5, an unusually large circular structure called Nordell’s Fort, has been described as "excellent," except for a small hole at the base of the north side, where the bedrock surface has crumbled (Gunnerson 1957:68); the site condition has not altered significantly in the past five decades. The site also

featured a slab-lined central fire pit, two unusually large lintel stones over the ground-level doorway, and double-coursed masonry walls that exhibit a distinctive style of chinking with small stones and pebbles, all of which make the structure the most elaborate example of stone masonry construction in the entire Fremont culture area (Spangler 1993:217-218).

Nordell's Fort (Photo 63) is located about 120 meters above the NMC floodplain on a narrow bedrock outcrop. It features internal dimensions of 4.9 meters north-south and 5.2 meters east-west. The height of the walls ranges from 2.2 meters on the south to 1.8 meters on the north. The chinking effect has created an interior wall surface that is exceptionally smooth, an architectural characteristic not observed elsewhere in the Tavaputs Plateau region (Spangler 1993:217).

Access to the structure is via a ground-level doorway on the south side of the structure, which was constructed to conform to the outer edge of the rock outcrop. The location of the structure offers a commanding view of NMC, although it featured no interior windows and the walls were constructed to a sufficient height as to prevent any view of the canyon. No evidence of any superstructure was visible in the sparse fill within the structure or along the well-preserved top of the double-coursed masonry walls (Spangler 1993:217-218).

Although scholars have not embraced the concept of Fremont ceremonial structures, utilization of this structure as a ceremonial site is implied by the exceptionally large size of the structure compared to residential sites located on nearby alluvial terraces, the construction of walls to such an excessive height as to prevent any view of the surrounding environment, the absence of any evidence of a roof superstructure, the prevalence of elaborate chinking absent at other residential sites, and the absence of any midden materials associated with domestic activities. Most convincing is the remarkable workmanship, which reflects architectural skills unparalleled in the Fremont region.

Many other architectural sites in NMC are located on inaccessible rock outcrops and contain little or no evidence of domestic activities (see discussion of temporary habitation sites above). These may also have served some ceremonial function, but these sites are typically smaller and reflect considerably less expenditure of energy. Generally, these sites lack walls of excessive height, and they do not feature the same quality of construction. It remains possible that 42Dc5 and similar structures were not ceremonial, but were defensive retreats characterized by an easily defensible access point. However, 42Dc5 is quite accessible and vulnerable to attack from the slope above.

As mentioned above, there are numerous sites in NMC of unknown utility that could be part of systematic communications system designed to signal dispersed families up and down the drainage. These include small circular structures (usually about 1 meter in diameter) situated high on cliff ledges with commanding views of the canyon drainage, and large stone cairns, also situated on cliff edges, prominent outcrops and pinnacle tops that are visible at a considerable distance. How these features could have been utilized as communications devices remains unknown. The small circular structures, although suitable for large fires, show no evidence of fire-scarring. The cairns, many of which have collapsed, are ubiquitous. But there appears to be no precedence in the greater

Southwest for the utilization of cairns within a system of signaling. Based on current research, the presence of communication structures in NMC must be considered tenuous.

Isolated Storage Structures The development of a complex storage strategy involving a variety of storage facilities is a hallmark of the Fremont culture, although it appears to have reached unprecedented levels in NMC and Tavaputs Plateau generally. As with residential architecture, storage facilities have traditionally been interpreted as evidence of concomitance to agriculture. This assumption is reinforced by the fact few storage facilities have produced radiocarbon or tree-ring dates consistent with earlier Archaic occupations. However, Gilman (1987:543) has argued that storage facilities are not concomitant with agriculture, but with pithouse architecture that may or may not be associated with agricultural subsistence. Rather, "Food storage depends in part on the availability of food in quantity enough to be stored and also in part on population size, among other factors". She also argued that larger, more "archaeologically obvious" storage facilities are evidence of winter sedentism (Gilman 1987:553-554).

Archaeologists have long recognized that storage facilities take many forms, including pits, rooms, pots and baskets (see Gozdzik 1985). However, few researchers have offered explanations as to why certain storage strategies were employed, how these may have differed in time and space, and the implications of storage strategies on site distribution, seasonal mobility, organizational hierarchy and population demographics. The utilization of storage facilities has significant implications for settlement patterns and subsistence strategies. Smiley (1993:247) argued the presence of storage facilities

> *... provides a solid indication of a surplus-based economy, so different from the usual hunter-gatherer pattern…. Farming populations have an entirely different strategy in that they determine, within their technological limits, where, when and how much of the given types of resources will be available. They decide not only future resource availability in terms of the time of harvest, but also in terms of a supply for the most distant future through storage [Smiley 1993:248].*

Consequently, the construction of storage structures, whether for food surpluses or seeds for future cultivation, inherently implies a decision to adopt more-sedentary lifeways. For the purpose of this discussion, definitions offered by Metcalfe (1986) are used. He described storage strategies as "putting something away for future use" and caching as "specifically hiding the stored material" with the implication "the material is left unattended for substantial periods of time." Metcalfe (1986:1) further argued that there are two basic types of storage facilities: (1) Structures for the simple storage of harvested crops, which are typically large and associated with domestic structures, and (2) structures located in situations that make them relatively difficult to access and, in some cases, exhibit considerable energy expenditure in making them all but invisible to a casual observer.

Both types of storage strategies are evident in NMC, although most storage sites fall into the second category of "difficult to access" or they were constructed to be almost invisible to the casual observer. Some surface storage facilities are located contiguous to circular or oval residential structures, but this pattern is not common. The

paucity of on-site storage stands in decided contrast to major Fremont sites like Nawthis Village in central Utah and the Baker Site in eastern Nevada, which both featured storage strategies involving large facilities in direct association with residential structures and small subsurface, slab-lined cists in close proximity to dwellings. Evidence at Nawthis Village and the Baker Site suggested the Fremont people harvested and subsequently stored in large quantities for expedient use by a relatively sedentary population.

The NMC storage strategies appear to have been dominated by remote storage and/or caching of harvested resources by a more mobile population that did not require expedient access to stored resources. The construction of large (often exceptionally large) storage structures indeed implies the production of food surpluses. However, the location of these facilities on inaccessible cliff ledges and niches also suggest periodic or seasonal abandonment of the canyon, with resources being retrieved as needed. The cliff structures would have provided good protection from rodent predation, as well as from humans, despite the fact the cliff sites are readily visible to anyone walking the canyon bottoms. The size and energy expenditure required to construct storage facilities of this magnitude would appear to contradict the relatively small human population suggested for NMC generally (Spangler 1993, 2002).

The larger cliff granaries, because of their inaccessibility or because repeated vandalism has removed all traces of organic materials, have not been subjected to quantitative radiocarbon or tree-ring analysis. The Alger Ranch Ruin was initially described as a cliff dwelling. However, the description of the site is more characteristic of a complex slabstone and masonry storage structure. Reagan described it as a two-story, circular edifice over which was placed four large wooden beams, and a second rectangular structure. The walls of both structures were constructed of flat stones laid in adobe mortar (Reagan 1931c:50). Reagan described no associated artifacts, but Lon Alger, the owner of a nearby ranch, reported the presence of corncobs and a large, flat basket that may have been utilized as a parching tray (Reagan1931c:51). A construction beam with bark yielded an outside tree-ring date of A.D. 1065.

Site 42Cb776, located in the South Franks Canyon tributary to NMC, was a slabstone and masonry structure situated in a narrow crevice in a cliff face about 15 meters above the canyon bottom and of very difficult access. A few Emery Gray potsherds were observed, but no maize. A portion of a wood construction beam yielded a C-13 adjusted radiocarbon date of 690 $\pm$50 B.P. (A.D. 1293 calibrated). The site also featured a row of red pictographs consisting of dots, triangles and streaks (Spangler 1993:205). This site represents the latest Fremont occupation yet documented in NMC (the median intercept is toward the end of the third extended drought thought to have devastated remaining agriculture-dependent populations throughout the Southwest).

More common are numerous smaller storage structures situated on cliff ledges, in narrow niches in the cliff face and in small rockshelters. These facilities are much easier to access, and in many cases no effort was made to conceal them. At other sites, considerable effort was expended to camouflage the presence of the storage facilities, implying that human predation was a problem. These facilities offer evidence that rodent predation was a problem. Although it may have been more economically efficient to build one large structure, several sites exhibit numerous smaller chambers contiguous to each other, often sharing common walls. The construction of numerous

small structures would have diminished the likelihood that all stored food at a given location would be destroyed by rodent intrusion.

A good example of this "compartmentalization" was observed at 42Dc655, which featured a complex arrangement of stone slab and adobe storage structures situated in a niche in a cliff face more than 100 meters above the floodplain and very difficult to access. The floor area of one niche had been leveled with a layer of wooden poles set perpendicular to the cliff face. A series of small circular structures had been constructed contiguously above the pole floor, each of which featured an adobe-collar entrance sealed with a thin, flat slabstone lid. These structures were not visible from the ground surface immediately below the site, perhaps reflecting an attempt to conceal the cache from human predation. A corncob from the adobe matrix yielded a C-13 radiocarbon date of 830 ±70 B.P. (A.D. 1218 calibrated) (Spangler 1993).

Many smaller storage facilities have been camouflaged and are not associated with residential sites, implying a caching strategy perhaps precipitated by the threat of human predation. For example, 42Cb729 is a masonry granary located in a rockshelter more than 650 meters above the NMC floodplain. The shape and size of the original structure could not be determined because of a rock fall. However, two 2-piece cottonwood shovel-shaped objects were recovered. A portion of one shovel returned a C-13 adjusted radiocarbon date of A.D. 1100 ±90 B.P. (A.D. 910 calibrated). This site also contained evidence of maize, suggesting a remote caching strategy (Spangler 2002).

Digging sticks were also recovered from 42Cb731, a small slabstone and adobe granary also located in a rockshelter. A portion of one digging stick returned a C-13 adjusted radiocarbon date of 990 ±50 B.P. (A.D. 1023 calibrated). No maize was observed in association with this structure, which was located more than 500 meters above the floodplain. Both storage sites indicate that storage facilities were also utilized to cache important non-food items (Spangler 2002).

Other sites provide corroborative evidence of complex storage strategies during the late Formative. Site 42Dc665 was comprised of two storage structures situated in a small rockshelter more than 100 meters above the NMC floodplain. The structures featured large vertical slabstones set in a rectangular pattern and sealed at the corners with adobe. The top of one structure featured a circular, adobe-collared opening. Three digging sticks were utilized as support posts; a portion of one of these sticks yielded a C-13 adjusted radiocarbon date of 1090 ±60 B.P. (979 calibrated) (Spangler 1993:242). These structures were located in relative proximity to a complex residential site and may have functioned as an on-site storage.

Site 42Cb615 was a well-preserved subsurface cist constructed of stone slabs, poles and adobe. The cist was located within a small rockshelter that featured other rock alignments of undetermined utility. Two potsherds of unidentified grayware pottery and three corncobs were recovered, one of which returned a C-13 adjusted radiocarbon date of 990 ±70 B.P. (A.D. 1023 calibrated). The structure may be representative of a storage strategy that included concealment of resources, perhaps to avoid human predation (Spangler 1993).

Collectively, the empirical data suggest that rodent and human predation were significant problems, and separate but overlapping strategies were developed to compensate for both problems. In the case of rodent predation, storage chambers were divided into separate compartments, minimizing risk that intrusion into one chamber would result in the loss of all stored resources. These chambers typically feature an exceptional amount of adobe to make the walls, floors and ceilings impenetrable. In the case of human predation, sites were often situated high on cliff faces where access was extremely precarious or specialized equipment (e.g., ladders or ropes) were required to gain access. In other cases, storage facilities were "hidden" in niches and rockshelters, often hundreds of meters above the floodplain, where they were camouflaged to be almost imperceptible to passing humans. In some cases, like 42Dc655, dual strategies to avoid human and rodent predation are evident at the same site.

Criterion D: Previous Research and Potential for Future Information

The archaeological resources of NMC have contributed immeasurably to the emergence of the Fremont culture concept as it has evolved over the past century. Indeed, the history of archaeological research here, in many respects, is a history of the evolution of American archaeology as a science in Utah (Janetski 1997) and the United States (Willey and Sabloff 1980). Initial researchers exhibited a preoccupation with cultural classification schemes, regional diffusionism and material culture traits. Later, the pioneering approaches of Julian Steward, Noel Morss, Donald Scott and John Gillin demanded a greater attention to scientific detail, providing the foundation for modern archaeological research throughout the region. By the 1940s, archaeology had become preoccupied with detailed cultural materialism studies focused on developing relative cultural chronologies, all aided with the advent of tree-ring and radiocarbon dating. Throughout subsequent decades, archaeologists have focused more on understanding NMC and the Fremont peoples who lived there within the context of human behavior, a trend reflected throughout North American archaeology.

NMC has great potential for additional archaeological research leading to a greater understanding of human lifeways during all periods of prehistory. Much research remains to be done to establish broader cultural chronologies, reconstruct prehistoric climates and describe the spatial and temporal extent of prehistoric resources in the canyon. The great variety of sites with excellent preservation also makes it possible to address an array of questions relating to cultural, social and demographic changes.

Nine Mile Canyon and the Fremont Culture The first scientist to conduct serious archaeological research in northeastern Utah was Henry Montgomery, a University of Utah naturalist trained in many different disciplines, who explored NMC in 1892 with geologist Don Maguire to acquire collections for the 1894 World's Columbian Exposition in Chicago. Montgomery's account noted approximately 30 structural sites and 25 rock art sites located between Sheep Canyon and Cottonwood Canyon. He apparently conducted excavations in NMC, although he did not describe them other than to say, "From another house ruin the skeleton of a typical Cliff Dweller with flattened occiput was taken at a depth of five feet beneath the floor" (Montgomery 1894:340). Montgomery described "considerable quantities of corn, shelled and unshelled, as well as gourds and water tanks" (1894:337); sandstone metates of a different material than the natural sandstone of the area (1894:338); and corncobs, buffalo horn, painted pottery and bone tools, all recovered from an open structural site (1894:339). A "bag or sack-like

basket" containing about a bushel of shelled corn and corncobs was removed from a beehive-shaped storage structure (1894:341).

Montgomery (1894:340) argued for homogeneity between the prehistoric inhabitants of the NMC area and Puebloan peoples found in other parts of the Southwest. He believed, "Utah, being on the outskirts of the country occupied by a great nation whose headquarters were probably in Mexico, might properly be expected to be provided with a considerable number of military posts or watch stations." His speculations are not that unusual, given the theoretical orientation of Southwestern archaeology at that time that tended to view Southwestern "cultures" as byproducts of the great Mesoamerican civilizations.

During the subsequent three decades, however, pioneering archaeologists elsewhere on the northern Colorado Plateau began to see important differences between the well known Anasazi south of the Colorado River and those of the so-called "northern periphery" north of the Colorado River. This recognition crystallized in the late 1920s and early 1930s with the emergence of the Fremont culture concept. Working under the auspices of the Claflin-Emerson Expedition at the Peabody Museum at Harvard University, Noel Morss made a brief visit to NMC in 1929 as part of his research that effectively defined the Fremont culture north of the Colorado River as related to but distinct from those to the south. Most of Morss' monograph is devoted to describing the Fremont culture as peripherally related to the Basketmaker and Pueblo cultures of the Southwest, describing distinctive artifacts and arguing for a horticulture/hunting and gathering subsistence pattern. Morss' observations in NMC played a critical part in the formation of the Fremont culture concept which remains relatively intact. He hypothesized that

> *... although the culture was partly and perhaps predominantly agricultural, the inhabitants of the Fremont region were also dependent in good part on the game supply. Small granaries apart from any dwellings show that the people moved about, in all probability living in flats in the summer and cultivating corn, and in the winter in sheltering canyons around the mountains and devoting themselves to hunting. In its general features, the culture remained at the Basketmaker III level, as shown by the pottery, the figurines, the absence of cotton and turkeys, the twined-woven mats, the fur cloth, the relative abundance of coiled basketry, the various forms of snares and traps, and the general shape of the anthropomorphic pictographs. Only in a few characteristics -- the bow and arrow, mountain sheep pictographs, stone drills and possibly head deformation -- does the culture show traits in common with the early Pueblo culture with which it had contacts [Morss 1931:76-77].*

Morss' observations within NMC were confined to a 10-mile section of the main canyon between the Preston Nutter Ranch and Cottonwood Canyon where he noted an abundance of dry-laid stone masonry but did not assign any great antiquity to the structures. His NMC investigations included the excavation of a partially mummified body of a child in Rasmussen Cave. It lay on its back, the arms flexed at the sides and the femurs pointed almost straight up, the lower legs missing. The lower jaw was also missing, and the skull showed moderate occipital

deformation. There was no evidence of anything accompanying the burial other than rotted fragments of mountain sheep skin adhering to the back of the head (Morss 1931:29).

Morss (1931:42) also devoted attention to NMC rock art, describing a variety of styles that contrasted with the "comparative uniformity" of Fremont rock art in other areas. He believed the Fremont anthropomorphs developed from Basketmaker prototypes and indicated the personification of supernatural beings in forms similar to those in the Southwest. Morss (1931:40) argued "on the whole" that the rock art of NMC showed more resemblance to that of the Pueblo area than to the Fremont region proper.

Led by Donald Scott, the main body of the Claflin-Emerson Expedition arrived in NMC in 1931 (Gunnerson 1969). Thirty-four sites were described in NMC, including Nordell's Fort (42Dc5). Researchers were particularly struck by the defensive orientation of surface structures, most located on pinnacles and rock outcrops a considerable distance above the valley floor and many with defensive walls across their points of access (Scott 1931:57-61). The crews excavated a remarkably well preserved Archaic burial from Rasmussen Cave (42Dc16), and also recorded and photographed rock art throughout the area. In fact, NMC was described as "almost a continuous picture gallery" (Scott 1931:10). The expedition, which explored the archaeology of the northern Colorado Plateau from 1928 to 1931, remains among the most historically important early archaeological investigations in the West.

Records of the Utah Museum of Natural History indicate that Julian Steward, one of the pioneers of modern archaeology, also conducted excavations in NMC in 1931, and that a variety of projectile points, maize remains, basketry, bones and "dried lizards" were recovered. Steward did not specifically describe his NMC investigations in his numerous publications, and the exact location where he conducted these investigations is unknown. Steward was later replaced at the University of Utah by John Gillin, who would also become an important figure in American archaeology. Gillin's 1936 excavations at three sites in the upper portion of NMC marked the first detailed excavations in the region, and the first conducted here after the formalization of the Fremont culture concept (cf. Morss 1931). Excavations were conducted at Valley Village (42Cb4), which consisted of five "slab houses" arranged in roughly linear order on a slight knoll on the valley floor; at Beacon Ridge (42Cb3), another residential site located on a ridge east of Valley Village and about 35 meters above the valley floor; and at Sky House (42Cb1), located 120 meters above the valley floor. Gillin's detailed descriptions of Fremont pithouses became a model cited by subsequent generations of Fremont scholars.

Gillin also recovered numerous structural beams that provided the basis for the University of Arizona Tree-Ring Studies in the region from 1946 to 1951 (Ferguson 1949; Schulman 1948, 1951). These studies provided the first temporal framework for NMC, suggesting "It would appear that ruins in Nine Mile Canyon carried construction dates in the 950s, 1060s and 1150s" (Schulman 1948:14). These studies would prove profoundly influential, not only for interpretations of Fremont temporal relationships in NMC but throughout the northern Colorado Plateau.

James Gunnerson visited the canyon briefly in 1954 as part of a University of Utah statewide reconnaissance to determine the spatial extent of the Fremont culture. He described two sites in NMC, one the previously described

Nordell's Fort (42Dc5) and the other 42Dc6, the remains of several drylaid masonry walls on a rock outcrop near the mouth of Gate Canyon (1957:68). This research, while cursory by today's standards, provided a framework for Gunnerson's subsequent attempts to redefine the Fremont culture that incorporated considerable data from NMC.

Throughout the 1960s, Gunnerson published a series of papers, suggesting that population expansion among the Virgin Anasazi in southwestern Utah, brought about by the introduction of new maize hybrids suitable for more risky climates, resulted in a northward expansion of farmer-foragers into areas of the northern Colorado Plateau that had been sparsely occupied by hunters and gatherers.

> *This northward spread of people is here interpreted as the vigorous frontier movement of a resourceful population that had remained unspecialized through the retention of many old traits, including hunting and gathering techniques, after the adoption of new traits. The people on the northern frontier of Anasazi developed the distinctive Fremont and Sevier cultures, which dominated the northern three-fourths of Utah from ca. A.D. 950 to ca. A.D. 1200. Then, apparently as a result of worsening climatic conditions, deculturation took place, changing all of the horticulturalists north of the Colorado River into hunters and gatherers, probably the Plateau Shoshoneans of historic times [Gunnerson 1969:ix].*

Gunnerson's hypothesis was based largely on a very limited amount of chronometric data available at that time, the vast majority of it coming from NMC. Gunnerson (1960) and Ambler (1969) reexamined the research of Schulman (1948, 1950, 1951, 1954) and Smiley (1951) and compared the dendrochronology with evidence of well-dated Anasazi ceramics found in Fremont contexts. Gunnerson (1960:376) concluded "it seems advisable to date Fremont culture at about A.D. 950 to 1200, for the best tree-ring dates fall for the most part in that period, and dates before about A.D. 1000 are questionable. Moreover, the trade pottery supports an A.D. 950-1200 range for Fremont sites in the middle and southern parts of the area."

The emerging concept that the entire Fremont culture could be narrowly described within a few hundred years was enormously influential on archaeologists throughout the late 1960s and 1970s, who often rejected radiocarbon dates that were inconsistent with the narrow temporal range. The theory was rejected only after the acquisition of hundreds of radiocarbon dates showing a robust farmer-forager adaptation with nascent Fremont attributes as early as A.D. 200 in many different parts of the northern Colorado Plateau and eastern Great Basin. The flaw in Gunnerson's and Ambler's temporal hypotheses was applying the NMC tree-ring dates to the entire Fremont culture, when it is now evident that it applies specifically to NMC and related drainages on the Tavaputs Plateau.

In fact, the narrow temporal range for NMC has been reaffirmed by subsequent researchers (Spangler 1993, 2002; Thompson 1993), who produced the first quantitative radiocarbon dates for residential and storage sites in the canyon. These calibrated dates all had median intercepts between about A.D. 1000 and 1300, although most were narrowly grouped between about A.D. 1050 and 1175. This research, conducted by Brigham Young University, also constituted the first systematic examination of the lower third of NMC. In this area, Spangler (1993) found a

direct correlation between the frequency of prehistoric sites and the immediate availability of arable lands, pinyon-juniper and permanent water. He found the frequency of prehistoric sites in lower NMC decreased dramatically as surveyors moved east toward the Green River and out of the modern pinyon-juniper zone. The canyon also narrows significantly in this area, reducing the amount of potentially arable land. In the western portion of the survey area, where all three resources are abundant, residential site density ranged from 10 to 20 sites per square mile. In the eastern portion, where arable lands and pinyon-juniper trees are rare, the site density averaged less than one site per square mile.

In addition to the history of archaeological theory, the archaeological resources of NMC have made two other important contributions: (1) the development of the first state laws to protect cultural resources, and (2) the largest volunteer effort in the state's history to document archaeological sites as part of a nomination of the canyon as an archaeological district to the National Register of Historic Places. The crush of "official" expeditions during the 1920s and 1930s, as well as rampant vandalism, prompted the state of Utah in the mid-1930s to ban "all exploration and excavations for, as well as prohibiting the removal of, prehistoric relics from the state without a permit from the State Parks Commissioners," and it condemned the prevalence of vandalism of cultural sites that had left few artifacts for Utah museums. Arising from this growing concern, the Utah State Museum Association sponsored a statewide archaeological reconnaissance, which reached NMC in 1934 under the guidance of Frank Beckwith (Strevell and Pulver 1935:15).

The involvement of volunteers in archaeological research and the protection of threatened resources has a long history in NMC. In 1974 and 1975, a group of Brigham Young University anthropology students conducted an intensive rock art survey along a 3.6 mile section of the canyon from the mouth of Argyle Canyon to just west of the Moeller Ranch. The purpose of the project was to obtain a complete rock art inventory of as much of the north wall of the canyon as possible (Hurst and Louthan 1979:5). Some 122 sites were recorded during the course of the survey, of which 117 were rock art sites with 325 separate panels (1979:22-24). They observed that the density of rock art sites decreased in proportion to the distance from the canyon bottom, and that rock art tended to be clustered around the mouths of side canyons (1979:53-54).

The student project provided the inspiration for a four-year effort in the late 1980s and early 1990s by scores of volunteers, all concerned about the deterioration of the canyon's cultural resources, to conduct "an inventory of the cultural resources of Nine Mile Canyon" with the stated intent that the inventory would justify the nomination of NMC to the National Register of Historic Places (Miller and Matheny 1990:123-125). Ninety-seven prehistoric sites were recorded during the 1989 survey, which concentrated on a two-mile area from the mouth of Argyle Canyon to the Duchesne County line, and a short distance into the Argyle and Sheep Canyon tributaries (Matheny and Matheny 1990:6-7). The 1990 survey covered approximately 1 mile, from 0.5 miles east of Blind Canyon to the mouth of Dry Canyon, and 79 sites were recorded (Matheny et al. 1991:10). The 1991 survey began at Dry Canyon and proceeded east downstream a distance of less than 1 mile. Forty-six prehistoric sites were recorded (Matheny et al. 1992:6-7). In 1992, the survey continued eastward to the mouth of Cottonwood Canyon. Seventy-one prehistoric sites were recorded (Matheny 1993:5).

Surveys conducted by the Utah Statewide Archaeological Society constitute the most quantitative data yet collected within NMC, demonstrating a spatially continuous occupation of the canyon. The site descriptions document a robust residential presence, much of it focused on stream terraces and ridges, and related rock art sites, storage facilities, walls, rock alignments and other structures of unknown utility. These data are consistent with the overall pattern of residential farmsteads situated to maximize economic access to arable lands, permanent water and pinyon-juniper resources. The surveys were largely restricted to lower, easily accessible sites, and little effort was expended documenting higher-elevation sites in more precarious topographic settings (e.g., refuge sites). Large sections of the canyon bottom remain uninvestigated at this time.

Collectively, research conducted in NMC over the past 110 years is a microcosm of the evolution of archaeological method and theory as each has evolved over the same time. This research has made invaluable contributions to the emergence of the Fremont culture concept, and subsequent refinements that have defined Fremont adaptations to the unique environment of the Tavaputs Plateau. The predominance of late Formative defensive sites in NMC suggests that Fremont farmer-foragers were greatly influenced by sociopolitical and climatic events occurring elsewhere in the Southwest at the same time, although the mechanisms that prompted this adaptation remain largely unknown.

Future research The archaeological resources of NMC have tremendous potential to contribute to an understanding of prehistoric human behavior throughout the northern Colorado Plateau, in particular human responses to periodic droughts and concomitant acceleration of violence. Among the research themes that could be addressed within NMC, all of which contribute to the district's eligibility under Criterion D, include community planning and development, social history, architecture (including rock art), agriculture and ethnic heritage. These potential avenues of research often overlap, reflecting the complexity of resources found in NMC.

Community Planning and Development

Current evidence suggests that late Formative Fremont peoples in NMC applied a dual settlement pattern involving dispersed families living in pithouses on ridges and stream terraces with economically efficient access to permanent water, arable lands and pinyon-juniper resources, and one involving refuge sites at higher elevations in defensible postures without efficient access to water or arable land. Does this pattern indeed reflect a concurrent strategy or does it instead reflect different responses through time? Are there spatial patterns to the refuge behavior? How can refuge behavior be quantified in the archaeological record? What prompted the refuge behavior? Is there evidence that refuge behavior is a byproduct of local participation in a pan-regional interaction sphere involving distant population centers in the Southwest?

There is currently marginal evidence that Fremont farmer-foragers occupied NMC prior to A.D. 900, although this is probably a sampling bias. Was there indeed an early Fremont presence here from A.D. 600 to 900? How did this adaptation differ from later Fremont adaptive strategies? How was community structure different at this time? Was there a socioeconomic relationship to the robust Fremont presence in the Uinta Basin at the same time, or

was it related to the Fremont strategies emerging in the San Rafael Swell? How were early Formative subsistence strategies different prior to the large population increases of the late Formative?

Fremont storage strategies in NMC have typically been described within the context of storing surplus foods for later consumption, either in on-site storage for immediate access or in caches where they can be protected from human and rodent predation. Is there a spatial patterning evident in the location of storage sites? Are there temporal differences? Does the utilization of camouflaged cists and inaccessible cliff granaries offer evidence of seasonal or longer-term abandonment of the canyon? Can population demographics and community organization be determined from the volume of food that could have been cached in the storage facilities? Do storage strategies suggest cooperative efforts by a larger community or were they individual family or kin-group responses? Does large-scale storage imply a commitment to agriculture or is there evidence the facilities were utilized for other food products?

Most archaeological investigations to date have focused on residential and storage sites, most of which are evidence of late Formative adaptations. How did the late Fremont of NMC exploit the entire landscape? What is the relationship of permanent residential sites to semi-permanent and temporary ones? How did climatic changes affect human land-use patterns? What is the logistical relationship between sedentary and mobile sites? Are there changes evident in human responses through time? How long were particular sites occupied and what are the implications for population dynamics through time? Were pithouses constructed for winter habitation, as they were elsewhere in the Southwest, or were they farmsteads occupied during warmer months?
The aggregation of some families into small villages is evident at several locations throughout the canyon. Does this reflect population expansion or is it evidence of dispersed populations coming together for mutual defense and economic cooperation? Does it reflect the aggregation of non-kin-related individuals and what are the social and demographic implications of population aggregation? Were the villages occupied concurrently with the dispersed farmsteads? Did aggregation result in a more structured social structure? Could population expansion in a marginal environment have contributed to the collapse of NMC farming communities?

Social History

Based on evidence at rock art sites and a burial associated with hunting equipment characteristic of the Archaic, it is assumed Archaic hunter-gatherers occupied NMC. Was the Archaic presence here evidence of transitory hunting parties, or was the canyon the focus of seasonally sedentary foraging activities? Can evidence of Archaic lifeways be identified in stratified rockshelter deposits? Were there shifting cultural affinities throughout the Archaic involving hunter-gatherer groups from the eastern Great Basin, northwestern Plains and northern Colorado Plateau? What resources are found within NMC that would have been attractive to Archaic hunter-gatherers, and does the availability of those resources provide evidence of seasonal occupation? Does evidence of Archaic hunting and gathering offer clues as to cultural continuity in the region, or of shifting cultural influences?

Archaeological evidence in NMC appears to share cultural affinity to many different areas. What were the social, economic and political relationships of the families living in NMC to groups living in the Uinta Basin, San Rafael

Swell and other Fremont areas? Can trading partnerships and political alliances be identified in the archaeological record? Does the presence of Anasazi pottery suggest relationships with distant Anasazi communities, and if so in what regions? How were these relationships related to the refuge behavior evident in late Formative times?

Recent research has documented widespread warfare throughout the Southwest during late Formative times, and it has been suggested the Tavaputs Plateau was included within that interaction sphere. What evidence is there to suggest violence elsewhere was manifest in NMC? How can warfare be identified in the archaeological record here? How was local refuge behavior similar to or different from responses elsewhere in the Southwest? Was warfare limited to the waning decades of the thirteenth century coincident to a persistent drought that affected other areas of the Southwest? Is there a relationship between warfare and changing community structure? Is there evidence that warfare elsewhere in the Southwest prompted a migration of farmers into the Tavaputs Plateau? Was the collapse of this refuge behavior the result of climate change, warfare or both? Was the refuge behavior evident in NMC concurrent with systematic exploitation of the canyon for bighorn sheep, or did sedentary farming lifeways here result in conflict with traditional hunting activities?

Several radiocarbon dates, most from isolated artifacts, have demonstrated that ancestral Ute hunters and gatherers (Numic-speakers) occupied NMC by at least A.D. 1500, if not earlier. What was the extent of this occupation and how were land use patterns similar or different from earlier periods of time? Is there evidence that Numic-speaking hunter-gatherers could have lived symbiotically with Fremont farmers centuries prior to the collapse of farming about A.D. 1300? Were Numic-speaking hunter-gatherers actually remnants of Fremont farmers who reverted to hunting and gathering following climatic deterioration in the late A.D. 1200s? How do hunting and gathering strategies after A.D. 1300 differ from those prior to that time, and does this suggest cultural continuity?

Architecture and Rock Art

NMC contains an abundance of natural sandstone slabs that can be utilized for building construction with little or no modification. This has resulted in remarkable examples of Fremont architecture not found elsewhere in the region. However, no studies have been conducted into architectural styles and whether there are spatial and temporal differences. What can a careful study of architecture reveal about construction techniques and what are the implications for human behavior? How do the construction techniques compare to Fremont architecture in adjoining areas and to Anasazi styles further to the south? What do the similarities and differences imply about relationships to other areas?

Current evidence suggests that residential structures in NMC were occupied temporarily, perhaps seasonally. What can be learned about the energy expenditure necessary to construct different types of structures? What are the costs and benefits of constructing permanent architecture for temporary use? What can architectural evidence reveal about mobility versus sedentism? Is the absence of significant middens a reflection of temporary occupation and/or seasonal use? What can microrefuse analyses tell researchers about subsistence and seasonality? What are the functional advantages of semi-subterranean pithouses versus fully subterranean or surface residences?

The abundance of large surface structures, invariably referred to as "forts," is unparalleled in the Fremont area. Is there a relationship between these structures and the well documented towers of western Colorado and southeastern Utah? Are they evidence of refuge behavior or ceremonial use? How can ceremonial use be identified in the architectural record? Are there differences in architectural styles evident in surface structures not present in more traditional residential structures?

The unique attributes of 42Dc5 make it one of the most important standing structures on the northern Colorado Plateau. What are the implications of the unique chinking style that created the exceptionally smooth interior surface? Are there parallels elsewhere in the Southwest? Why was the structure constructed on a high prominence but with no view out of the structure? Why is there no evidence of a roof or other superstructure? Why is archaeological preservation so remarkable at this site? Does the size and complexity of the structure imply cooperative efforts to construct it? Does it reflect the work of a master craftsman with exceptional engineering skills?

NMC has an abundance of large stone cairns and small, circular stone structures, all situated on the edge of cliffs with commanding views of the canyon. What was the human behavior that prompted the construction of these structures? Does the spatial distribution of these sites support the idea they were part of a communications network, and if so, what can be learned about inter-group cooperative endeavors? Are there ethnographic examples of similar structures among Southwestern or Plains groups?

Fremont rock art demonstrates a consistency in form, a level of skill in their creation and knowledge about specific construction techniques over broad geographic areas. Does this suggest the existence of a stratified society in which the individuals who created these images were a privileged or influential or high-ranking individual? Does the presence of these images suggest the existence of an institutionalized system of religious attitudes, beliefs and practices? How did these images function in the preliterate societies of the Fremont? How did rock art integrate society?

The existence of rock art images in NMC in their relative contexts yield information important in determining the meaning, purpose and function of these various images. Why was the rock art created? Can meaning be derived from the symbols that make up the panels? How did the images function in the various prehistoric societies in which they were constructed? Over what area did similar concepts spread?

It is believed that much of rock art was created in response to an ideological belief or practice. Rock art has the ability to reveal the distribution of ideological concepts in various primitive societies and also the variation existing in the practice or display of the specific ideology. Can ethnographic evidence derived from modern indigenous groups (e.g., Utes and Puebloans) provide clues to the spatial distribution and function of rock art in NMC? How do modern indigenous groups view rock art here? Why was the display of the ideology so consistent across broad geographic areas? Who enforced this consistency and what can it tell us about social structure? Was superstition the source of the motivation behind the consistency?

Anthropological evidence suggests that people bring their ideology with them, and that rock art images were determined by the ideas and practices prevalent at a particular moment in time and among a particular social group. The study of rock art in NMC can help determine how these ideas and practices varied over both time and space. To what degree did groups of Fremont in diverse regions communicate with each other? Were the images intended as a means of communication and with whom? Why is the rock art in the Uinta Basin so similar to that in the Capitol Reef area of central Utah and the San Juan area of southeastern Utah, but so dissimilar to that in NMC?

The entire eastern half of the state of Utah, where NMC is located, was home to an Archaic people that left behind images that could date as early as 6000 B.C. The images are most concentrated in the south where they are commonly labeled Anasazi Basketmaker and are least concentrated in the north where they are often labeled as Fremont. Are these images Fremont or are they Basketmaker? Is the current definition of Fremont and Basketmaker (including the rock art) incorrect? Are the people in the north Proto-Fremont or Archaic? When did the Fremont become a separate cultural entity? Is rock art telling a different story than physical archaeological remains?

Agriculture

The advent of agriculture among the Fremont remains a topic of considerable interest and debate. What evidence is there that early Fremont farmers exploited NMC? What climatic changes occurred through time that would have facilitated farming activities, and which changes would have militated against it? What social or environmental factors would have prompted greater exploitation of the area after A.D. 900 but not before? Is there evidence of irrigation or other water control techniques? How would the manipulation of water sources affect crop yields and impact population dynamics? What domesticated foods could be grown here and under what conditions? Are there differences in soil qualities throughout NMC that would have facilitated agriculture in some areas but not others?

Traditional models for Fremont subsistence suggest some were full-time farmers, others were practicing a mixed farming and foraging way of life, and yet others were full-time foragers, and that environmental constraints resulted in tremendous flexibility or "shifting" along the spectrum of farming and foraging. What evidence is there in NMC of "shifting"? Is there evidence that subsistence strategies changed significantly through time? How important were wild foods to local diets? Does the NMC evidence support mobile hunting and gathering or more logistical foraging? What was the logistical range for foraging activities and what implication does that have for the types of wild foods that could be exploited?

Evidence from the nearby Uinta Basin to the north suggests that maize horticulture appeared suddenly and without precedence about A.D. 200, and that it appears to have strong affinities to Basketmaker II lifeways in the Southwest. With its permanent source of water and abundance of arable lands, is there evidence of a Basketmaker-like adaptation in NMC? Was it horticultural in nature? How can this adaptation be distinguished from later farming strategies? Can evidence of Basketmaker-like adaptations offer new evidence in the long-running debate

over the *in situ* development of Fremont lifeways versus migration of Basketmaker farmers from the Four Corners area? How were land use patterns of incipient horticulturalists different from later Fremont times? Can evidence of early agriculture still be recovered from valley floor occupations damaged by modern agriculture?

It has recently been suggested that NMC was primarily a hunting locus, and that agriculture was of secondary importance. What was the relationship of hunting to farming among local populations? How can hunting versus farming subsistence be measured in the archaeological record here? What evidence is there of hunting camps, large-scale meat processing and transport? Can migratory patterns of big game animals be used to reconstruct prehistoric hunting patterns and the seasonality of game acquisition? Is a hunting subsistence pattern inconsistent with farming?

The abundance of large granaries and storage cists implies the production of food surpluses. What can be learned from these structures about the types and amount of food that could be stored? What implications does volume have for population size, caloric return and mortality? What can be learned from caching strategies as it relates to mobility, seasonality of occupation and retrieval costs? What does agricultural production reveal about commitment to sedentary lifeways?

In the greater Southwest, the production of ceramic containers is seen as a response to a need for a container durable enough to boil domesticated beans. North of the Colorado River, plain gray ceramic containers appear about A.D. 600, almost always tempered with locally available materials (e.g., basalt, limestone and sand). However, in NMC there is little evidence of a local ceramic tradition, and most potsherds are tempered with materials from distant regions. What can the paucity of local ceramics reveal about agricultural lifeways? Does the paucity of evidence for domesticated beans in NMC relate to the paucity of ceramic vessels of local manufacture? Can petrographic analysis of pottery temper reveal clues as to whether local populations were bringing in small amounts of ceramic vessels from the San Rafael Swell or Uinta Basin? What does this imply regarding mobility versus sedentism? What are the implications regarding the commitment of local populations to agriculture?

Current evidence suggests Fremont populations in NMC began to diminish after A.D. 1150, and that agricultural lifeways had been abandoned by the late A.D. 1200s. What localized or macroregional climatic or social events precipitated an abandonment of Fremont agricultural lifeways that had proven successful for centuries? Did the abandonment reflect merely a "switching" to hunting and gathering, or did the pan-regional abandonment of farming about the same time reflect large-scale population migrations? Could remnant populations of farmers have persisted in isolated environments beyond A.D. 1300, as they did in other areas of northwestern Colorado and northeastern Utah? Did population growth exceed the carrying capacity of the Tavaputs Plateau environment?

Ethnic Heritage

The ethnic heritage of Fremont populations remains largely unresolved, with modern Ute peoples and unrelated Puebloan groups claiming cultural affinity to the Fremont. Resolution of these claims is as much a political issue as it is a scholarly debate. Scholarly efforts will likely include DNA analyses of human remains, quantitative

radiocarbon analyses to determine temporal continuity or discontinuity, and additional studies of uniquely diagnostic material culture (e.g., ceramics and basketry).

Clues as to ethnic heritage of prehistoric groups in NMC can be found in the rock art abundant in the region. For example, are rock art styles evidence of different ethnic groups with cultural affinities to the Great Plains, Great Basin and/or Colorado Plateau? Are rock art styles different across time and space? Are those differences evident in the iconography and ideology of modern American Indian groups? Is there a spatial distribution to different rock art styles that could offer clues as to how different groups with different ethnic identities utilized the canyon landscape? Can ethnographic analogy be applied to the rock art of NMC to better understand why rock art was made, why it was located where it was and its spatial relationship to other archaeological sites? Can superimposition of rock art images be used to identify different ethnic groups and their relationship to one another?

Researchers throughout the past century have noted that the rock art of NMC appears different from that of other Fremont areas and that it seems to share more affinity to the Southwest. How similar is the rock art of NMC to the rock art of other areas or regions? Would this similarity or dissimilarity indicate ethnic affiliation to distant regions? Can rock art styles be used to demonstrate the movement of peoples from one location to another, or would it reflect the spread of a regional ideology with roots in distant areas?
Shield-bearing warrior figures are common rock art images found throughout the western United States in both prehistoric and historic contexts. Loendorf (2004) has suggested these figures had their origin among the Fremont of northeastern Utah and that it spread to other later groups. Do stylistic similarities among shield figures across broad geographic areas and different linguistic groups reflect a “borrowing” of iconography or ideology from ancestral Fremont groups? Is there iconographic evidence to suggest the Fremont peoples of northeastern Utah are related to Tanoan-speakers or Athapaskan-speakers known to use the same images in historic times?

Rock art may also provide important avenues of research into the arrival of Numic-speaking populations into the northern Colorado Plateau generally and NMC specifically. Can superimposition of rock art images provide evidence of continuity or displacement? Are their stylistic and iconographic differences that can shed light on the issue? Are there diagnostic images that are different between Fremont and Ute rock art? Is there evidence of modification of Fremont images over time that could help determine if the Utes displaced, mingled with or developed from the Fremont? Are there substantive differences in how Utes of the historic period executed rock art panels and the techniques of prehistoric peoples? Are there thematic and compositional differences?

Historical resources The historical sites in Nine Mile Canyon are eligible under Criterion D because some significant aspects of the history will only be known through archaeological investigations. Many of the homesteads and ranches were never formally filed for or documented. Most of the canyon’s residents, the homesteaders and cowboys, were poor and sometimes illiterate so they left no written records. The only evidence of their existence is the physical remains. In addition, the livestock features like corrals and fences, so important to herd management are rarely discussed in the extant historical records. These features are important

to understanding how herds were managed, land use patterns and human activity around the herds. The herds ranged over a vast area so individual sites or features are frequently meaningless when identified or considered in isolation. A regional landscape level inventory and analysis are the only way to fully comprehend how the system was organized and linked. All the components need to be recorded and studied to form a coherent picture.

Summary Sites within the district collectively contribute to a broader understanding of northern Colorado Plateau sociopolitical development, population dynamics and human responses to environmental variables. Because of the important role of earlier archaeological investigations in NMC in the development of the Fremont culture concept, and the likelihood sites within the district will contribute to a greater understanding of the florescence and demise of prehistoric agricultural lifeways across the northern Colorado Plateau, and because of the abundance and quality of prehistoric rock art and other material culture remains, the district is nominated at the national level of significance.

NMC has more than 700 recorded archaeological sites and thousands more that remain unrecorded, each of them shedding light to a greater or lesser degree on how human populations adapted to an unusually harsh desert environment and thrived in an area where economic survival is difficult today. These sites reflect permanent and temporary habitations that were the focus of daily social and economic activities, storage facilities that militated against the uncertainties of agriculture in an arid environment, specialized localities where tools were made and food was processed, and scores of structures whose function has become obscured with time.

More so than any other resource, the thousands of rock art images found within NMC make the canyon drainage truly unique on the northern Colorado Plateau, earning it international renown through dozens of magazine and journal articles, including at least three features in National Geographic. In fact, these sites collectively constitute some of the densest concentrations of prehistoric images anywhere in the world. These images each reflect the life experience and world view of the prehistoric craftsmen who created them, offering modern people a rare, if only partial, glimpse into the minds of those who created them. The reasons why rock art was created and created in such abundance in NMC remain elusive, and it may be the moniker "World's Longest Art Gallery" is a misnomer. It is quite possible that the images may not have been intended as "art" in the manner the term is used today, but as a form of communication or self-expression poorly understood by modern humans with little connection to the spiritual or environmental landscape of prehistoric times.

For these reasons in particular, the archaeological resources found in NMC remain an important locality for modern Ute and Pueblo peoples with traditional ties to the canyon and its iconography. It remains important as a destination for traditional prayers and ceremonies, as well as a place to honor ancient ancestors. These traditions, as they relate to NMC, have not been the subject of serious scholarly research. Although the questions and methods of inquiry that native peoples bring to archaeological sites usually differ greatly from those of professional archaeologists, there remain many opportunities for productive exchange.

Clifford Duncan, a Ute tribal elder with the nearby Uintah and Ouray Reservation, explained that it is not possible to determine what the many different rock art images mean, but that it reflects the thoughts and motivations of many different individuals who added to previous images, each adding a different perspective. What may have functioned as a shrine or holy place to one individual or group of individuals may have functioned as a boundary marker to a later people. But it all has spiritual significance to Ute peoples. "We as a Ute people, we respect this. That is why at certain times we come here and we make an offering, we leave corn or tobacco or maize or whatever, to offer to the spirit that is portrayed here" (in Blystone 1997).

Wil Numkena, a Hopi and the former director of the Utah Division of Indian Affairs who now works with the Hopi tribal government in Arizona, pointed to the rock art as potential evidence of ancient clan symbols indicative of tribal oral history that ancestral Hopis traveled far and wide in search of a homeland. These clan symbols, deeply meaningful to modern Hopis, include the sun, the bear, the snake and the rabbit, among others. "Everything in Hopi society has spiritual significance," he said. The images on stone, referred to by the Hopi as "paper rock," were put there by "the high priesthood or spiritual leadership of the Hopi clans and Hopi society. They are the ones who do the documents on the rock panels and stone tablets, not just anybody" (in Blystone 1997). Hopi tradition also mandates respect and reverence for the rock art images.

Although it is difficult to define "art," or the practice of human expression on a medium of some type, artistic expression has been a fundamental part the human existence for tens of thousands of years, and part of NMC for perhaps 8,000 years. Ethnographic studies have demonstrated that this expression is an inherent part the social and religious life of those who create the images, and that there is no delineation between the secular and religious or the aesthetic and the practical. As discussed by Bahn (1998:xi), "prehistoric art is of supreme importance not because of the vast numbers of objects and images from the past that our eyes consider to be beautiful or striking, but because it is art alone that gives humankind its true dimension by showing that human activities hold meanings other than those of a purely utilitarian kind." These meanings transcend cultural and ethnic boundaries, drawing tens of thousands of visitors to NMC every year to marvel and speculate, and inspiring many to dedicate their efforts to preserving these unique qualities.

Registration Requirements

For archaeological sites to be eligible for nomination under this cover, they must have been created during one of the context periods described in Section E. In addition they must meet at least one of the following criteria:

1) Rock art sites must contain at least one definable figure with an ascribed style and method of execution. Sites with markings that are too faint, damaged, weathered, sparse or indefinite to determine shape or method of creation are excluded from eligibility for nomination under this multiple property listing as a single site, but may be incorporated as part of a district for listing.

2) Archaeological sites must contain artifacts, architecture, radiocarbon or tree ring dates, material composition, or dating from other methods to associate them with the Late Archaic through Fremont periods. Sites that lack physical integrity and lithic scatters without diagnostic artifacts or discernible artifact patterns permitting association with a particular period are excluded from eligibility for nomination under this multiple property listing as a single site, but may be incorporated as part of a district for listing.

3) Historic resources, including archaeological sites, must have tangible association with the Nine Mile Canyon road or early livestock management practices. Sites radically modified or disturbed to the point where they exhibit little of their original context, are less than 50 years old in age, and lack appropriate materials to allow determination of function are excluded from eligibility for nomination under this multiple property listing as a single site, but may be incorporated as part of a district for listing.

4) Historic buildings, both residences and outbuildings, must have tangible association with the Nine Mile Canyon road or early livestock management practices. Sites radically altered to the point where they exhibit little of their original design, are less than 50 years old in age, and lack appropriate materials to allow determination of function are excluded from eligibility for nomination under this multiple property listing as a single site, but may be incorporated as part of a district for listing.

a. The building must maintain sufficient integrity to depict the era in which it was constructed. The degree to which the historic building is recognizable and to which the changes are integral to the building's form, massing, and detailing, will be evaluated based upon the existing architectural inventory. Many of Nine Mile Canyon's historic buildings have been changed over time. The local significance of these buildings, as Nine Mile's only historic architecture that can describe the settlement and development phases of the canyon's history, will be considered when evaluating the integrity of the buildings.

b. Maintaining the overall form and massing of the historic structure will be considered the most important factor when evaluating the impact of non-historic additions. Additions may be acceptable if they allow the original form of the building to read through.

c. Easily removable non-historic features, such as awnings, would not render a building ineligible.

d. Historic window and door openings must remain discernable. Cases will be evaluated individually.

e. Non-historic siding materials may be allowable if they mimic the original material (e.g., aluminum siding over wood siding), but these will be evaluated on an individual basis.

f. In certain cases, when the residence has been altered to a point where it would not be individually eligible for listing, but is part of a site that contains numerous other structures or features that date to the period of significance, the other buildings may be considered the primary contributing structures on the site.

Summary of Identification and Evaluation Efforts

References to the cultural resources of Nine Mile Canyon are myriad. The first appears to be that of Captain Francis Marion Bishop of the Colorado River Exploration Party, who camped in a cottonwood park near the mouth of the canyon on August 17, 1871 (the earliest reference to the name "Nine Mile Canyon"), during which time Bishop collected an arrowhead at the mouth of the canyon (Bishop 1947:190-191). The first professional account was that of Henry Montgomery, a University of Utah professor trained in many natural sciences, who visited the canyon in 1892 with geologist Don Maguire in search of artifacts for the Utah exhibit to the World's Columbian Exposition in Chicago. Montgomery's account noted approximately 30 structural sites and 25 rock art sites located between Sheep Canyon and Cottonwood Canyon (1894:336).

More than a dozen archaeological investigations have been conducted in the NMC since that time, some of them significant and others that failed to even produce written accounts. Five research projects can be said to have produced the majority of research data in the district. (1) The Claflin-Emerson Expedition (Morss 1931; Scott 1931), operating under the auspices of the Peabody Museum at Harvard University, conducted important investigations across the Tavaputs Plateau generally, and Nine Mile Canyon specifically. These data resulted in the formulation of the Fremont Culture concept that is still largely intact today. (2) Excavations at Valley Village and Sky House (Gillin 1938) constituted the first scientific excavations in the canyon, offering detailed descriptions of residential structures, burials and defensive structures, and eventually resulting in the first tree-ring dates that indicated occupations from about A.D. 900 to 1200 (Schulman 1948, 1951; Ferguson 1949). (3) The first systematic surveys of the canyon were conducted on the mid 1970s by Brigham Young University students concerned about the denigration of archaeological resources in the canyon (Hurst and Louthan 1976). These surveys demonstrated the tremendous density of sites throughout the canyon, and provided an impetus for additional volunteer surveys conducted in subsequent years. (4) From 1989 to 1996, volunteer crews from the Carbon County chapter of the Utah Statewide Archaeological Society conducted pedestrian surveys of the highly impacted areas along the road in preparation for the nomination of the canyon to the National Register (Matheny and Matheny 1990; Matheny et al. 1991, 1992; Matheny 1993). These surveys verified a significant rock art site density, established a consistent settlement pattern of small residential farmsteads and identified an unusually complex strategy of on-site and remote storage. A large portion of sites now documented in the canyon are attributed to these surveys. (5) The Brigham Young University field schools from 1989 to 1991 (Spangler 1993; Thompson 1993) resulted in the excavation of two residential sites and the first surveys of the lower canyon that identified 151 prehistoric sites. This research demonstrated a continuation of prehistoric settlement patterns through the canyon, but with decreasing site density in direct proportion to distance from pinyon-juniper resources and diminishing floodplains suitable for agriculture. This research, combined with the concurrent Carbon County project, resulted in the first quantitative radiocarbon analyses in the canyon.

Other individuals and research projects frequently mentioned in connection with the NMC include:

- Frank Beckwith, an amateur archaeologist and newspaper publisher from Delta, Utah, who in 1931 began a series of investigations into Utah rock art, focusing on the resources of Nine Mile Canyon (Beckwith 1931, 1932). Beckwith obtained hundreds of photographic images of rock art sites.
- Albert Reagan, a teacher at the U.S. Indian Field Service in Ouray, Utah, who initiated archaeological investigations under the auspices of the Laboratory of Anthropology in Santa Fe, New Mexico. Reagan visited the canyon at least three times between 1931 and 1934, offering colorful descriptions and comparisons to the cultural resources found in the adjacent Uinta Basin and East Tavaputs Plateau (1931a, 1931b, 1931c, 1933, 1935, 1937).
- Officials with the Utah State Museum Association, whose expedition to document rampant vandalism in 1934, resulted in the first state permitting system for archaeological investigations (Strevell and Pulver 1935). The results of this survey were never formally published.
- James Gunnerson, a University of Utah archaeologist who visited the canyon in 1954 as part of a statewide reconnaissance that refined the nature and geographic extent of the Fremont culture (1957). Gunnerson later synthesized the Claflin-Emerson field notes and, based largely on data from Nine Mile Canyon, proposed a then-influential hypothesis that Fremont occupations resulted from Pueblo II Anasazi migrations.
- Francis R. Flaim and Austen D. Warburton, amateur archaeologists loosely affiliated with the University of Santa Clara who conducted additional excavations at Rasmussen Cave in 1959, and recovered a number of unusual artifacts (1961).
- Allen Roberts conducted an architectural inventory of the canyon in 1994. The brief forms are the only documentation for many of the historic features in the canyon. The forms generally contain a photograph, usually a hand drawn floor plan sketch, and some discussion of construction materials, but no history or other information about the site.

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